Lincoln County, Washington

Community Wildfire Protection Plan

Adopted by the Lincoln County Board of Commissioners in September 2009

Harker Canyon Fire, Lincoln County, Washington – August 2005

This plan was developed by the Lincoln County Community Wildfire Protection Plan committee in cooperation with the Lincoln County Conservation District, Washington Department of Natural Resources, Bureau of Land Management, and Northwest Management, Inc.

Acknowledgments

This Community Wildfire Protection Plan represents the efforts and cooperation of a number of organizations and agencies working together to improve preparedness for wildfire events while reducing factors of risk.

Lincoln County Conservation District

Lincoln County Fire District #1
Lincoln County Fire District #3
Lincoln County Fire District #4
Lincoln County Fire District #5
Lincoln County Fire District #6
Lincoln County Fire District #7
Lincoln County Fire District #8
Lincoln County Fire District #9

Town of Almira
Town of Creston
Town of Harrington
Town of Odessa
Town of Reardan
Town of Wilbur

Unincorporated Communities
&
Local Businesses and Citizens of Lincoln County

City of Davenport
City of Sprague

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Forward

The process of developing a Community Wildfire Protection Plan (CWPP) can help a community clarify and refine its priorities for the protection of life, property, and critical infrastructure in the wildland–urban interface on both public and private land. It also can lead community members through valuable discussions regarding management options and implications for the surrounding land base. Local fire service organizations help define issues that may place the county, communities, and/or individual homes at risk. Through the collaboration process, the CWPP planning committee discusses potential solutions, funding opportunities, and regulatory concerns and documents their resulting recommendations in the CWPP. The CWPP planning process also incorporates an element for public outreach. Public involvement in the development of the document not only facilitates public input and recommendations, but also provides an educational opportunity through interaction of local wildfire specialists and an interested public.

The idea for community-based wildfire planning and prioritization is neither novel nor new. However, the incentive for communities to engage in comprehensive forest planning and prioritization was given new and unprecedented impetus with the enactment of the Healthy Forests Restoration Act (HFRA) in 2003. This landmark legislation includes the first meaningful statutory incentives for the US Forest Service (USFS) and the Bureau of Land Management (BLM) to give consideration to the priorities of local communities as they develop and implement forest management and hazardous fuel reduction projects. In order for a community to take full advantage of this new opportunity, it must first prepare a CWPP.

A countywide CWPP planning committee generally makes project recommendations based on the issue causing the wildfire risk, rather than focusing on individual landowners or organizations. Thus, projects are mapped and evaluated without regard for property boundaries, ownership, or current management. Once the CWPP is approved by the county board of commissioners, the planning committee will begin further refining proposed project boundaries, feasibility, and public outreach as well as seeking funding opportunities.

*The **Lincoln County Community Wildfire Protection Plan** was developed in 2009 by the Lincoln County CWPP committee, the Lincoln County Conservation District, and the Washington Department of Natural Resources with project facilitation and support provided by Northwest Management, Inc. of Moscow, Idaho. Funding for the project was provided by the Bureau of Land Management and the Washington Department of Natural Resources. This Community Wildfire Protection Plan will be reviewed annually and updated at least every five years starting from the year of adoption.*

The Community Wildfire Protection Plan was developed in compliance with the Federal Emergency Management Agency requirements for a wildfire mitigation plan, a chapter of a countywide Multi-Hazard Mitigation Plan.

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Chapter 1

Overview of this Plan and its Development

This Community Wildfire Protection Plan (CWPP) for Lincoln County, Washington, is the result of analyses, professional collaboration, and assessments of wildfire risks and other factors focused on reducing wildfire threats to people, structures, infrastructure, and unique ecosystems in Lincoln County. Agencies and organizations that participated in the planning process included:

- Lincoln County Commissioners and County Departments
    - Geographical Information Systems
    - Sheriff's Office
- Washington Department of Natural Resources
- Lincoln County Fire District #1
- Lincoln County Fire District #3
- Lincoln County Fire District #4
- Lincoln County Fire District #5
- Lincoln County Fire District #6
- Lincoln County Fire District #7
- Lincoln County Fire District #8
- Lincoln County Fire District #9
- Lincoln County Conservation District
- Lincoln County Cattlemen's Association
- National Park Service
- Town of Wilbur
- Bureau of Land Management
- Washington Department of Fish and Wildlife
- Northwest Management, Inc.

The Lincoln County CWPP steering committee solicited competitive bids from companies to lead the assessment and writing of the **Lincoln County Community Wildfire Protection Plan**. Northwest Management, Inc. (NMI) was selected to provide this service to the county. The project manager from NMI was Mrs. Tera R. King.

Goals and Guiding Principles

Planning Philosophy and Goals

The goals of the planning process include integration with the National Fire Plan, the Healthy Forests Restoration Act, and the Disaster Mitigation Act. The plan utilizes the best and most appropriate science from all partners as well as local and regional knowledge about wildfire risks

and fire behavior, while meeting the needs of local citizens and recognizing the significant impact wildfires can have to the regional economy.

Mission Statement

To make Lincoln County residents, businesses, and resources less vulnerable to the negative effects of wildland fires.

Vision Statement

Promote awareness of the countywide wildland fire hazard and propose workable solutions to reduce the wildfire potential.

Goals

1. Identify and map Wildland Urban Interface (WUI) boundaries
2. Identify and evaluate hazardous fuel conditions, prioritize areas for hazardous fuel reduction treatments, and recommend the types and methods of treatment necessary to protect communities
3. Prioritize the protection of people, structures, infrastructure, natural resources, and unique ecosystems that contribute to our way of life and the sustainability of the local and regional economy
4. Develop regulatory measures such as building codes and road standards specifically targeted to reduce the wildland fire potential and reduce the potential for loss of life and property
5. Educate communities about the unique challenges of wildfire in the wildland-urban interface
6. Provide a plan that balances private property rights of landowners in Lincoln County with personal safety and responsibility
7. Improve fire service organizations' awareness of wildland fire threats, vulnerabilities, and mitigation opportunities or options
8. Address structural ignitability and recommend measures that homeowners and communities can take to reduce the ignitability of structures
9. Recommend additional strategies for private, state, and federal lands to reduce hazardous fuel conditions and lessen the life safety and property damage risks from wildfires
10. Improve county and local fire agency eligibility for funding assistance (National Fire Plan, Healthy Forest Restoration Act, FEMA, and other sources) to reduce wildfire hazards, prepare residents for wildfire situations, and enhance fire agency response capabilities
11. Provide opportunities for meaningful discussions among community members and local, state, and federal government representatives regarding their priorities for local fire protection and forest management
12. Meet or exceed the requirements of the National Fire Plan and FEMA for a county level Community Wildfire Protection Plan
13. Identify areas of inadequate fire protection, such as gaps in district coverage, and develop solutions

United States Government Accountability Office (GAO)

Since 1984, wildland fires have burned an average of more than 850 homes each year in the United States and, because more people are moving into fire-prone areas bordering wildlands, the number of homes at risk is likely to grow. The primary responsibility for ensuring that preventative steps are taken to protect homes lies with homeowners. Although losses from fires made up only 2 percent of all insured catastrophic losses from 1983 to 2002, fires can result in billions of dollars in damages.

The GAO was asked to assess, among other issues, (1) measures that can help protect structures from wildland fires, (2) factors affecting use of protective measures, and (3) the role technology plays in improving firefighting agencies' ability to communicate during wildland fires.

The two most effective measures for protecting structures from wildland fires are: (1) creating and maintaining a buffer, called defensible space, from 30 to 100 feet wide around a structure, where vegetation and other flammable objects are reduced or eliminated; and (2) using fire-resistant roofs and vents. In addition to roofs and vents, other technologies – such as fire-resistant windows and building materials, chemical agents, sprinklers, and geographic information systems mapping – can help in protecting structures and communities, but they play a secondary role.

Although protective measures are available, many property owners have not adopted them because of the time or expense involved, competing concerns such as aesthetics or privacy, misperceptions about wildland fire risks, and lack of awareness of their shared responsibility for fire protection. Federal, state, and local governments, as well as other organizations, are attempting to increase property owners' use of protective measures through education, direct monetary assistance, and laws requiring such measures. In addition, some insurance companies have begun to direct property owners in high risk areas to take protective steps (GAO 2005).

State and Federal CWPP Guidelines

This Community Wildfire Protection Plan will include compatibility with FEMA requirements for a Hazard Mitigation Plan, while also adhering to the guidelines proposed in the National Fire Plan, and the Healthy Forests Restoration Act (2004). This Community Wildfire Protection Plan has been prepared in compliance with:

- The National Fire Plan: A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment 10-Year Comprehensive Strategy Implementation Plan–December 2006.
- Healthy Forests Restoration Act (2003).
- The Federal Emergency Management Agency's Region 10 guidelines for a Local Hazard Mitigation Plan as defined in 44 CFR parts 201 and 206, and as related to a fire mitigation plan chapter of a Multi-Hazard Mitigation Plan.
- National Association of State Foresters – guidance on identification and prioritizing of treatments between communities (2003).

The objective of combining these complementary guidelines is to facilitate an integrated wildland fire risk assessment, identify pre-hazard mitigation activities, and prioritize activities and efforts to achieve the protection of people, structures, the environment, and significant

infrastructure in Lincoln County while facilitating new opportunities for pre-disaster mitigation funding and cooperation.

Additional information detailing the state and federal guidelines used in the development of the Lincoln County Community Wildfire Protection Plan is included in Appendix 5.

Integration with Other Local Planning Documents

During development of this Community Wildfire Protection Plan, several planning and management documents were reviewed in order to avoid conflicting goals and objectives. Existing programs and policies were reviewed in order to identify those that may weaken or enhance the mitigation objectives outlined in this document. The following sections identify and briefly describe some of the existing Lincoln County planning documents and ordinances considered during development of this plan.

Lincoln County Comprehensive Emergency Management Plan (2006)

The purpose of the Comprehensive Emergency Management Plan (CEMP) is to guide the Lincoln County Department of Emergency Management in its responsibility to preserve lives, protect property and the environment, and to ensure public health in times of natural or technological disasters. The organization also provides for the coordination of recovery efforts following disasters, and will provide actions to mitigate the effects of such disasters, to the extent possible.

The CEMP is an all hazard plan that is promulgated by Lincoln County Board of Commissioners and Mayors of the participating cities and towns within the county and applies to all local public and private entities and organizations participating and included in the plan.

The CEMP is an all hazard approach to emergency and disaster situations likely to occur in the county, as described in the Lincoln County Hazard Identification/Vulnerability Analysis (HIVA), and provides the foundation for:

1. The establishment of an organization and guidelines for efficient and effective use of government, private sector and volunteer resources.
2. An outline of local government responsibilities in emergency management activities as described under RCW 38.52 and other applicable laws.
3. An outline of other participants' responsibilities in emergency management activities as agreed upon by the participating agencies and organizations.

Lincoln County Comprehensive Plan (1983)

The Comprehensive Plan is a legal document for guiding the future development of Lincoln County and is currently undergoing a revision process to be concluded in 2010-2011. The Plan is based upon the stated long-term goals and objectives of the county residents. The 1983 document covers land use, recreation, transportation, and economic elements.

Lincoln County Code: Title 16 – Land Divisions

The process by which land is divided is a matter of concern and should be administered in a uniform manner by cities, towns and counties throughout the state. The purpose of this title is to regulate the division of land and to promote the public health, safety, and general welfare in accordance with established standards to prevent the overcrowding of land; to lessen congestion

on the streets and highways; to promote effective use of land; to promote safe and convenient travel by the public on streets and highways; to provide adequate provisions for light and air; to facilitate adequate provisions for water, sewerage, parks and recreation areas, sites for schools and school grounds and other public requirements; to provide for proper ingress and egress; to provide for the expeditious review and approval of proposed subdivisions, which conforms to zoning and development standards and commercial needs of the citizens of the County and where to require uniform monumenting of land subdivisions and conveyancing by accurate legal description. In accordance with Chapter 58.17 RCW, Lincoln County has prescribed a method for controlling the division of land in unincorporated areas. Whereas the board of county commissioners deems the controls, standards, procedures and penalties set forth in this title to be essential to the protection of the public health, safety and general welfare of the citizens of Lincoln County and the adoption to be in the public interest.

Lake Roosevelt National Recreation Area Fire Management Plan (2000)

The preparation of a Wildland Fire Management Plan is required by the National Park Service (NPS) Wildland Fire Management Guidelines (DO-18), which states: "All parks with vegetation that can sustain fire must have a fire management plan. The resource management objectives of the park may determine whether a prescribed fire component is needed". Vegetation at Lake Roosevelt National Recreation (LRNRA) Area includes at least three fire prone ecosystems, these being steppe (semi-arid grassland), shrub/steppe, and ponderosa pine forests.

The NPS at LRNRA needs this plan to guide management decisions in response to wildland fire incidents occurring within LRNRA and adjacent to the area's boundary. Presently and in the future all wildland fires will be suppressed. The size and configuration of LRNRA's land base eliminates the option of using wildland fire to obtain other resource objectives that may be possible in a park with a large aggregate acreage. In contrast, the preferred alternative proposes to add a prescribed fire component that would enhance the NPS's ability to manage and improve the park's ecosystem components and processes while providing for firefighter and public safety.

Swanson Lakes Wildlife Area Management Plan (2006)

Management goals for the Washington State Department of Fish and Wildlife (WADFWS) Swanson Lakes Wildlife Area are to preserve habitat and species diversity for wildlife resources, maintain healthy populations of game and non-game species, protect and restore native plant communities, and provide diverse opportunities for the public to encounter, utilize, and appreciate wildlife and wild areas.

One of the agency's goals, as outlined in the Wildlife Area Management Plan, is to provide fire management on agency lands, which they do by maintaining fire protection contracts with the local fire districts. One of the agency's concerns regarding wildland fire is that it threatens sensitive habitats within the Wildlife Area. Swanson Lakes Wildlife Area contains fire-sensitive habitat that is critical to the survival of the Columbian sharp-tailed grouse. Deciduous trees and shrubs provide critical winter habitat, and the cover associated with tall bunchgrasses provides needed hiding and escape cover for sharp-tailed grouse.

Lincoln County Livestock Evacuation Program (Ongoing)

Lincoln County is currently working on an effort to provide for the evacuation of all livestock during emergency situations, particularly wildland fire. This effort is organized by a team of volunteers that helps contact livestock owners in the affected areas and work together to either

cut fences to allow animals to escape on their own or evacuate the animals to designed round up grounds. The volunteers involved in this program have organized the necessary equipment including trucks, trailers, and communication devices as well as on-call veterinarians to quickly and safely provide for the safety of the animals. The group involved in this program is working closely with the Sheriff's office to develop a formal plan outlining the program and its implementation.

Bureau of Land Management, Spokane Field Office Fire Management Plan (2004)

The purpose of the BLM's Spokane District Office Fire Management Plan (FMP) is to identify and integrate all wildland fire management guidance, direction, and activities required to implement national fire policy and fire management direction from the following: Federal Wildland Fire Management Policy and Program Review-1995 and 2001; The Interagency Fire Management Plan Template; and A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment: 10-Year Comprehensive Strategy Implementation Plan.

The FMP was developed around the Spokane District office fire management program and addresses all aspects of it, including wildland urban interface (WUI), rural fire assistance, prescribed fire, fuels management, prevention, and suppression. The FMP identifies a fire program that meets its identified fire management objectives.

Chapter 2

Documenting the Planning Process

Documentation of the planning process, including public involvement, is necessary to meet FEMA's DMA 2000 requirements (44CFR§201.4(c)(1) and §201.6(c)(1)). This section includes a description of the planning process used to develop the plan including how it was prepared, who was involved in the process, and how all of the involved agencies participated.

Description of the Planning Process

The Lincoln County Community Wildfire Protection Plan was developed through a collaborative process involving all of the organizations and agencies detailed in Chapter 1 of this document. The planning process included five distinct phases which were in some cases sequential (step 1 then step 2) and in some cases intermixed (step 4 completed throughout the process):

1. **Collection of Data** about the extent and periodicity of the wildfire hazard in and around Lincoln County.
2. **Field Observations and Estimations** about risks, location of structures and infrastructure relative to risk areas, access, and potential treatments.
3. **Mapping** of data relevant to pre-wildfire mitigation and treatments, structures, resource values, infrastructure, risk assessments, and related data.
4. **Facilitation of Public Involvement** from the formation of the planning committee to news releases, public meetings, public review of draft documents, and acknowledgement of the final plan by the signatory representatives.
5. **Analysis and Drafting of the Report** to integrate the results of the planning process, provide ample review and integration of committee and public input, and signing of the final document.

The Planning Team

Leading the planning effort from Lincoln County was Elsa Coffman representing the Lincoln County Conservation District and representatives from the Washington Department of Natural Resources.

Northwest Management Project Manager was Tera R. King, B.S. Mrs. King received a Bachelor of Science degree in natural resource management from the University of Idaho.

The planning philosophy employed in this project included the open and free sharing of information with interested parties. Information from federal, state, and local agencies was integrated into the database of knowledge used in this project. Meetings with the committee were held throughout the planning process to facilitate a sharing of information between participants. When the public meetings were held, many of the committee members were in attendance and shared their support and experiences with the planning process and their interpretations of the results.

Multi-Jurisdictional Participation

44 CFR §201.6(a)(3) calls for multi-jurisdictional planning in the development of Hazard Mitigation Plans which impact multiple jurisdictions. This Community Wildfire Protection Plan impacts the following jurisdictions:

- Lincoln County
- City of Sprague
- City of Davenport
- Town of Almira
- Town of Creston
- Town of Harrington
- Town of Odessa
- Town of Reardan
- Town of Wilbur
- Lincoln County Fire Districts #1-9
- Lincoln County Conservation District
- Washington Department of Fish and Wildlife
- Washington Department of Natural Resources
- Bureau of Land Management
- National Park Service

These jurisdictions were represented on the planning committee and in public meetings either directly or through their servicing fire department or district. They participated in the development of hazard profiles, risk assessments, and mitigation measures. The monthly planning committee meetings were the primary venue for authenticating the planning record. However, additional input was gathered from each jurisdiction in the following ways:

- Planning committee leadership visits to local group meetings (e.g. county departmental meetings, city council meetings, fire district commission meetings) where planning updates were provided and information was exchanged.
- One-on-one visits between the planning committee leadership and representatives of the participating jurisdictions (e.g. meetings with county commissioners, city councilors and/or mayors, fire district commissioners, or community leaders).
- Written correspondence between the planning committee leadership and each jurisdiction updating the participating representatives on the planning process, making requests for information, and facilitating feedback.

Like other areas of Washington and the United States, Lincoln County's human resources have many demands placed on them in terms of time and availability. A few of the elected officials (county commissioners and city mayors) do not serve in a full-time capacity; some of them have other employment and serve the community through a convention of community service. Recognizing this and other time constraints, many of the jurisdictions decided to identify a representative to cooperate on the planning committee and then report back to the remainder of their organization on the process and serve as a conduit between the planning committee and the jurisdiction.

Planning Committee Meetings

The following people participated in planning committee meetings, volunteered time, or responded to elements of the Lincoln County Community Wildfire Protection Plan's preparation.

NAME	ORGANIZATION
Bob Krause	Fire District #7
Bryan McCleary	Fire District #8
Chase Hubbard	Fire District #7
Craig Sweet	Fire District #5
Dale Bly	Lincoln County Resident
Dave Hubbard	Lincoln County Resident
Dawn Nelson	Lincoln County Cattlemen's Association
Dean Reinbold	Fire District #5
Debbie Plummer	Bureau of Land Management
Denny Pinar	Fire District #8
Elsa Coffman	Lincoln County Conservation District
Frank Thomas	Fire District #9
Gary Phillips	Fire District #5
Gene Johnson	Fire District #5
Juli Anderson	Washington Department of Fish and Wildlife
June Hues	Bureau of Land Management
Joe Weeks	Washington DNR
Kathryn Jump	Lincoln County resident
Kevin Coffman	Fire District #7
Loren Houger	Fire District #7
Matt Holliday	Hawk Creek Landowner
Mike Finch	Fire District #7 and Department of Fish and Wildlife
Mike Piper	Fire District #5
Penny Rosenberg	Fire District #9
Richard Parrish	Bureau of Land Management
Ron Mielke	Fire District #6
Ron Rosenberg	Fire District #9
Scott Clemenson	Fire District #1
Scott Hutsell	Lincoln County Commissioner
Scott McGowan	Fire District #6
Steve Harris	Washington Department of Natural Resources
Tera R. King	Northwest Management, Inc.
Terry Harding	Fire District #1
Travis McKay	Fire District #1
Vaiden Bloch	Northwest Management, Inc.
Wade Magers	Lincoln County Sheriff's Office

Committee Meeting Minutes

The planning committee began monthly meetings in December of 2008. These meetings served to facilitate the sharing of information and to lay the groundwork for the Lincoln County CWPP. Monthly planning meetings were held the third Monday of every month.

Planning committee meeting minutes are included in Appendix 2.

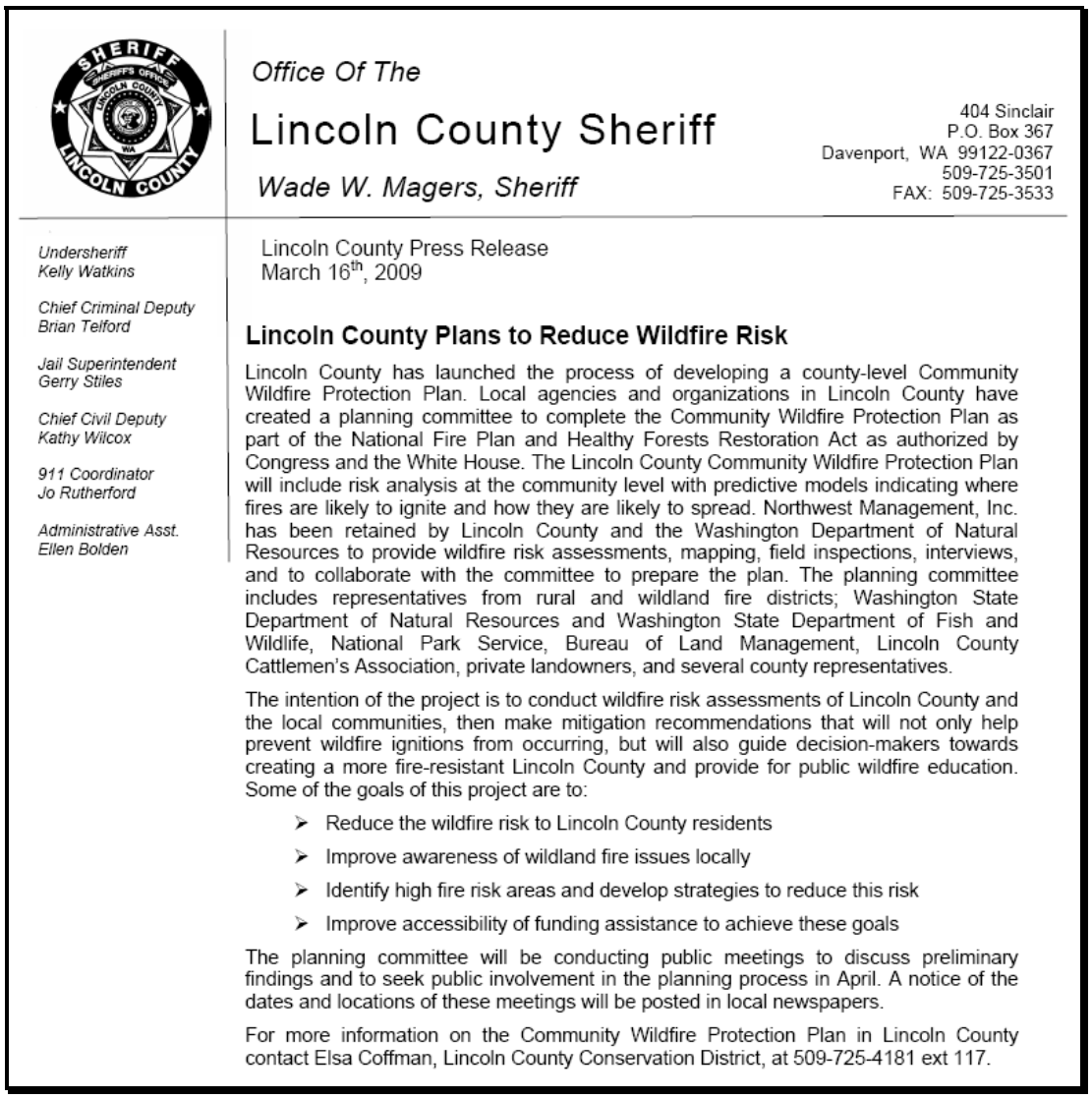
Public Involvement

Public involvement was made a priority from the inception of the project. There were a number of ways that public involvement was sought and facilitated. In some cases, this led to members of the public providing information and seeking an active role in protecting their own homes and businesses, while in other cases it led to the public becoming more aware of the process without becoming directly involved in the planning.

News Releases

Under the auspices of the Lincoln County planning committee, news releases were submitted to the *Davenport Times*, the *Wilbur Register*, the *Odessa Record*, *Lincoln Advertiser*, the *Huckleberry Press*, and *The Star*. Informative flyers were also distributed around town and to local offices within the communities by the committee members.

Figure 2.1. Press Release sent on March 16th, 2009.



Office Of The

Lincoln County Sheriff

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Undersheriff
Kelly Watkins

Chief Criminal Deputy
Brian Telford

Jail Superintendent
Gerry Stiles

Chief Civil Deputy
Kathy Wilcox

911 Coordinator
Jo Rutherford

Administrative Asst.
Ellen Bolden

Lincoln County Press Release
March 16th, 2009

Lincoln County Plans to Reduce Wildfire Risk

Lincoln County has launched the process of developing a county-level Community Wildfire Protection Plan. Local agencies and organizations in Lincoln County have created a planning committee to complete the Community Wildfire Protection Plan as part of the National Fire Plan and Healthy Forests Restoration Act as authorized by Congress and the White House. The Lincoln County Community Wildfire Protection Plan will include risk analysis at the community level with predictive models indicating where fires are likely to ignite and how they are likely to spread. Northwest Management, Inc. has been retained by Lincoln County and the Washington Department of Natural Resources to provide wildfire risk assessments, mapping, field inspections, interviews, and to collaborate with the committee to prepare the plan. The planning committee includes representatives from rural and wildland fire districts; Washington State Department of Natural Resources and Washington State Department of Fish and Wildlife, National Park Service, Bureau of Land Management, Lincoln County Cattlemen's Association, private landowners, and several county representatives.

The intention of the project is to conduct wildfire risk assessments of Lincoln County and the local communities, then make mitigation recommendations that will not only help prevent wildfire ignitions from occurring, but will also guide decision-makers towards creating a more fire-resistant Lincoln County and provide for public wildfire education. Some of the goals of this project are to:

- Reduce the wildfire risk to Lincoln County residents
- Improve awareness of wildland fire issues locally
- Identify high fire risk areas and develop strategies to reduce this risk
- Improve accessibility of funding assistance to achieve these goals

The planning committee will be conducting public meetings to discuss preliminary findings and to seek public involvement in the planning process in April. A notice of the dates and locations of these meetings will be posted in local newspapers.

For more information on the Community Wildfire Protection Plan in Lincoln County contact Elsa Coffman, Lincoln County Conservation District, at 509-725-4181 ext 117.

A record of articles published in local news media is included in Appendix 2.

Public Meetings

Public meetings were scheduled in several of the communities in Lincoln County during the hazard assessment phase of the planning process to share information on the planning process, obtain input on the details of the hazard assessments, and discuss potential mitigation treatments. Attendees at the public meetings were asked to give their impressions of the accuracy of the information generated and provide their opinions of potential treatments.

The initial schedule of public meetings in Lincoln County included four locations. They were attended by a number of individuals on the committee and from the general public. Total attendance was as follows: 24 in Wilbur, 6 in Harrington, 9 in Davenport, and 36 in Deer Meadows. The public meeting announcement sent to the local newspapers, local citizen participation organizations, county departments, fire district representatives, and distributed by committee members is represented in Figure 2.2.

Figure 2.2. Public Meeting Flyer.

Lincoln County, Washington

Community Wildfire Protection Plan

Public Meetings!

April 21st - Wilbur Fire Station (10 Northwest Cole Street) at 6:30 pm
April 22nd - Harrington Memorial Hall (6 South Third Street) at 6:30 pm
April 28th - Davenport Memorial Hall (511 Park Street) at 6:30 pm
April 29th - Deer Meadows Fire Station (42117 Miles Creston Rd North) at 6:30 pm

These public meetings will address the **Community Wildfire Protection Plan** being developed for Lincoln County. Public input is being sought to better understand the vulnerability of County residents, businesses, and resources to wildfire. The purpose of this plan is to promote awareness of the countywide wildland fire hazard and propose workable solutions to reduce the wildfire risk.

The planning committee is working on:

- Mapping the Wildland Urban Interface in Lincoln County
- Improving public awareness and educating the public about wildfire risk
- Evaluating strategies for landowners to lessen wildfire potential
- Addressing areas of inadequate fire protection
- Recommending risk mitigation projects

Harker Canyon Fire, Lincoln County - August 2005

Mill Canyon Fire, Lincoln County - August 2004

These meetings are open to the public and will include slideshow presentations by wildfire specialists and local personnel working to develop the plan.

Learn about the assessments of wildfire risk and the wildland urban interface of Lincoln County. Discuss ***YOUR*** priorities for how our community can best mitigate these risks.

Please attend and participate!

The planning committee would like to provide the opportunity for meaningful discussions among community members and local, state, and federal government representatives regarding their priorities for local fire protection and land management.

For more information on the Community Wildfire Protection Plan project, contact Elsa Coffman, Lincoln County Conservation District, at 509-725-4181 ext 117 or Tera King at Northwest Management, Inc. 208-883-4488 ext 133.

Documented Review Process

Review and comment on this plan has been provided through a number of venues for the committee members as well as the members of the general public.

During regularly scheduled committee meetings in 2009, the committee met to discuss findings, review mapping and analysis, and provide written comments on draft sections of the document. During the public meetings, attendees observed map analyses and photographic collections, discussed general findings from the community assessments, and made recommendations on potential project areas.

The first draft of the document was prepared and presented to the committee on April 20th, 2009 for a full committee review. The draft document was released for public review on June 3rd, 2009. The public review period remained open until July 6th, 2009.

Continued Public Involvement

Lincoln County is dedicated to involving the public directly in review and updates of this CWPP. The Lincoln County Commissioners, working through the Lincoln County Conservation District, are responsible for review and update of the plan as recommended in chapter 6 of this document.

The public will have the opportunity to provide feedback about the plan at any time. Copies of the plan will be available at the Lincoln County Conservation District office and on the Lincoln County website. Contact information for the project coordinator is listed on the Acknowledgements page.

A public meeting will also be held as part of each formal plan review or when deemed necessary by the planning committee. The meetings will provide the public a forum in which they can express concerns, opinions, or ideas about the plan. The Lincoln County Conservation District will publicize the public meetings and maintain public involvement through the County's webpage and newspapers.

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Chapter 3

Lincoln County Characteristics

Prior to the 1800's, Lincoln County was inhabited by several groups of Native Americans. The rolling plains were considered wasteland by early military authorities. The first permanent settlers arrived in the mid-1800's and settled in the bottomlands close to the water sources. More people settled in Lincoln County with the construction of the Northern Pacific rail lines. The new arrivals discovered that the best agricultural land was on the deep soils of the rolling hills. Lincoln County was officially established in 1883 (Lincoln County Comprehensive Plan 1983). Currently, Lincoln County covers 2,311 square miles with 4.4 persons per square mile.

Geography and Climate

Lincoln County is located on the Columbia Plateau, which was created by lava flows hundreds of feet thick, modified by glacial action and scoured by repeated floods during the Miocene and Pliocene eras. This fairly level, rough topography is called the Channeled Scablands and includes features such as plateaus, buttes, and channels. Channels are made up of outwash terraces, bars, loess islands and basins. The plateaus contain circular mounds of loess (biscuits) surrounded by cobble-size fragments of basalt. Soils generally consist of silt loams with varying amounts of rock or gravel, and basaltic rock outcroppings. Generally, the soils along on the northern-most end of the county are derived from the local parent material, which includes granite and basalt, covered by and mixed with imported material, which includes glacial, fluvial, and wind-deposited material. The topsoil layers are most often very thin and vulnerable (WDFW 2006).

The average daily temperature varies from a low of -13 degrees Fahrenheit to a high of 100 degrees Fahrenheit, averaging 46 degrees. There are 120 to 160 frost-free days in the growing season with annual precipitation averaging between 12 and 16 inches (WDFW 2006).

Population and Demographics

Lincoln County grew in population to a peak of over 17,000 around 1910. During this time, there were more than 2,000 farms in the county and almost twice as many people lived in the rural areas as in the towns. Presently, farms are much larger in average acreage, but fewer in number (Lincoln County Comprehensive Plan 1983).

The U.S. Census Bureau estimates that Lincoln County has only experienced a 0.7% increase in population since 2000 compared to a 9.7% increase statewide. The Census Bureau also reported that there were 297 private nonfarm establishments (2006) and 4,151 households (2000). The median income for a household in Lincoln County in 2007 was $41,954, which is less than the statewide median of $55,628,

Table 3.1. Lincoln County Historical Population Data.

Census	Population
1890	9,312
1900	11,969
1910	17,539
1920	15,141
1930	11,876
1940	11,361
1950	10,970
1960	10,919
1970	9,572
1980	9,604
1990	8,864
2000	10,184

(Census 1990 and 2000)(Lincoln County Comprehensive Plan 1983)

Land Ownership

The vast majority of Lincoln County is privately owned. Most of the land is used for ranching and farming purposes; although, more and more residents are moving into the rural areas along the Lake Roosevelt shoreline. Numerous subdivisions and housing clusters are developing along the northern border of the county.

Table 3.2. Ownership Categories in Lincoln County.

Land Owner	Acres	Percent
Bureau of Land Management	80,875	5%
Bureau of Reclamation	6,093	0%
Lincoln County	758	0%
Washington Department of Natural Resources	44,176	3%
Private	1,346,138	90%
School District	95	0%
The Nature Conservancy	346	0%
Washington Department of Fish and Wildlife	17,638	1%
Washington Department of Transportation	364	0%
Total	**1,496,482**	**100%**

A map of the land ownership pattern in Lincoln County is included in Appendix 1.

Natural Resources

Lincoln County is a diverse ecosystem with a complex array of vegetation, wildlife, and fisheries that have developed with, and adapted to fire as a natural disturbance process. Nearly a century of wildland fire suppression coupled with past land-use practices (primarily timber harvesting and agriculture) has altered plant community succession and has resulted in dramatic shifts in the fire regimes and species composition. As a result, some forests and rangelands in Lincoln County have become more susceptible to large-scale, higher-intensity fires posing a threat to life,

property, and natural resources including wildlife and plant populations. High-intensity, stand-replacing fires have the potential to seriously damage soils and native vegetation. In addition, an increase in the number of large, high-intensity fires throughout the nation's forest and rangelands has resulted in significant safety risks to firefighters and higher costs for fire suppression (House of Representatives, Committee on Agriculture, Washington, DC, 1997).

Vegetation

Much of the terrain in Lincoln County is dominated by shrub-steppe communities, with some grassland interspersed with rock outcrops. The dominant grass and shrub-steppe communities are primarily composed of Bluebunch wheatgrass, Idaho fescue, Wyoming big sage, and rigid sage. Common shrub species are snowberry, rose, serviceberry, and Wax current. Although riparian areas are few, they offer important vertical structure in the vast extent of open grassland. These stands of trees and/or shrubs provide hiding, escape and thermal cover, shade, foraging and nesting sites, perches, and water sources. Overstory trees in riparian zones include quaking aspen, black cottonwood, and water birch, while the understory vegetation is composed of hydrophytic shrub species such as mock orange, alder, Rocky Mountain maple, black hawthorn, and willow (WDFW 2006).

Located in a semi-arid transition zone, plant communities along the Lake Roosevelt National Recreation Area gradually change from steppe and shrub-steppe communities to ponderosa pine forest. As this is a transition zone between grassland and forest environment, large block definitions can be difficult due to affects of varying aspect and soil types. The three predominant plant communities include bunchgrass grasslands (steppe); shrub-steppe; and transition ponderosa pine forest. Other communities of note include wetland/riparian, lithosolic (rocky soil), rocky outcrops, and mixed-conifer forests (Hebner 2000).

Table 3.3. Vegetative Cover Types in Lincoln County.

Cover	Acres	Percent
Herbaceous/Nonvascular-dominated	916,299	61%
No Dominant Lifeform	41,479	3%
Non-vegetated	17,945	1%
Shrub-dominated	455,676	30%
Tree-dominated	65,084	4%
Total	**1,496,482**	**100%**

Hydrology

The Washington Department of Ecology & Water Resources Program is charged with the development of the Washington State Water Plan. Included in the State Water Plan are the statewide water policy plan and component basin and water body plans, which cover specific geographic areas of the state (WDOE 2005). The Washington Department of Ecology has prepared general lithologies of the major ground water flow systems in Washington.

The state may assign or designate beneficial uses for particular Washington water bodies to support. These beneficial uses are identified in section WAC 173-201A-200 of the Washington Surface Water Quality Standards (WQS). These uses include:

- **Aquatic Life Uses:** char; salmonid and trout spawning, rearing, and migration; nonanadromous interior redband trout, and indigenous warm water species

- **Recreational Uses:** primary (swimming) and secondary (boating) contact recreation
- **Water Supply Uses:** domestic, agricultural, and industrial; and stock watering

While there may be competing beneficial uses in streams, federal law requires protection of the most sensitive of these beneficial uses.

A correlation to mass wasting due to the removal of vegetation caused by high intensity wildland fire has been documented. Burned vegetation can result in changes in soil moisture and loss of rooting strength that can result in slope instability, especially on slopes greater than 30%. The greatest watershed impacts from increased sediment will be in the lower gradient, depositional stream reaches.

Of critical importance to Lincoln County will be the maintenance of the domestic watershed supplies in the Lower Spokane Watershed (WRIA 54), Lower Lake Roosevelt Watershed (WRIA 53), and Upper Crab-Wilson Watershed (WRIA 43).

Air Quality

The primary means by which the protection and enhancement of air quality is accomplished is through implementation of National Ambient Air Quality Standards (NAAQS). These standards address six pollutants known to harm human health including ozone, carbon monoxide, particulate matter, sulfur dioxide, lead, and nitrogen oxides (USDA Forest Service 2000).

The Clean Air Act, passed in 1963 and amended in 1977, is the primary legal authority governing air resource management. The Clean Air Act provides the principal framework for national, state, and local efforts to protect air quality. Under the Clean Air Act, OAQPS (Office for Air Quality Planning and Standards) is responsible for setting standards, also known as national ambient air quality standards (NAAQS), for pollutants which are considered harmful to people and the environment. OAQPS is also responsible for ensuring these air quality standards are met, or attained (in cooperation with state, Tribal, and local governments) through national standards and strategies to control pollutant emissions from automobiles, factories, and other sources (Louks 2001).

Smoke emissions from fires potentially affect an area and the airsheds that surround it. Climatic conditions affecting air quality in northeast Washington are governed by a combination of factors. Large-scale influences include latitude, altitude, prevailing hemispheric wind patterns, and mountain barriers. At a smaller scale, topography and vegetation cover also affect air movement patterns. Air quality in the area is generally moderate to good. However, locally adverse conditions can result from occasional wildland fires in the summer and fall, and prescribed fire and agricultural burning in the spring and fall. All major river drainages are subject to temperature inversions which trap smoke and affect dispersion, causing local air quality problems. This occurs most often during the summer and fall months and would potentially affect all communities in Lincoln County. Winter time inversions are less frequent, but are more apt to trap smoke from heating, winter silvicultural burning, and pollution from other sources.

Washington State Smoke Management Plan

The Department of Natural Resources (DNR), Department of Ecology (DOE), U.S. Forest Service (USDA), National Park Service (NPS), Bureau of Land Management (BLM), U.S Fish and Wildlife Service (USDI), participating Indian nations, military installations (DOD), and

small and large forest landowners have worked together to deal with the effect of outdoor burning on air.

Protection of public health and preservation of the natural attractions of the state are high priorities and can be accomplished along with a limited, but necessary, outdoor burning program. Public health, public safety, and forest health can all be served through the application of the provisions of Washington State law and this plan, and with the willingness of those who do outdoor burning on forest lands to further reduce the negative effects of their burning.

The Washington State Smoke Management Plan pertains to DNR-regulated silvicultural outdoor burning only and does not include agricultural outdoor burning or outdoor burning that occurs on improved property. Although the portion of total outdoor burning covered by this plan is less than 10 percent of the total air pollution in Washington, it remains a significant and visible source.

The purpose of the Washington State Smoke Management Plan is to coordinate and facilitate the statewide regulation of prescribed outdoor burning on lands protected by the DNR and on unimproved, federally-managed forest lands and participating tribal lands. The plan is designed to meet the requirements of the Washington Clean Air Act.

The plan provides regulatory direction, operating procedures, and advisory information regarding the management of smoke and fuels on the forest lands of Washington State. It applies to all persons, landowners, companies, state and federal land management agencies, and others who do outdoor burning in Washington State on lands where the DNR provides fire protection, or where such burning occurs on federally-managed, unimproved forest lands and tribal lands of participating Indian nations in the state.

The plan does not apply to agricultural outdoor burning and open burning as defined by Washington Administrative Code (WAC) 173-425-030 (1) and (2), nor to burning done "by rule" under WAC 332-24 or on non-forested wildlands (e.g., range lands). All future reference to burning in this plan will refer only to silvicultural burning unless otherwise indicated.

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Chapter 4

Risk and Preparedness Assessments

Wildland Fire Characteristics

An informed discussion of fire mitigation is not complete until basic concepts that govern fire behavior are understood. In the broadest sense, wildland fire behavior describes how fires burn; the manner in which fuels ignite, how flames develop and how fire spreads across the landscape. The three major physical components that determine fire behavior are the fuels supporting the fire, the topography in which the fire is burning, and the weather and atmospheric conditions during a fire event. At the landscape level, both topography and weather are beyond our control. We are powerless to control winds, temperature, relative humidity, atmospheric instability, slope, aspect, elevation, and landforms. It is beyond our control to alter these conditions, and thus impossible to alter fire behavior through their manipulation. When we attempt to alter how fires burn, we are left with manipulating the third component of the fire environment; fuels which support the fire. By altering fuel loading and fuel continuity across the landscape, we have the best opportunity to control or affect how fires burn.

A brief description of each of the fire environment elements follows in order to illustrate their affect on fire behavior.

Weather

Weather conditions contribute significantly to determining fire behavior. Wind, moisture, temperature, and relative humidity ultimately determine the rates at which fuels dry and vegetation cures, and whether fuel conditions become dry enough to sustain an ignition. Once conditions are capable of sustaining a fire, atmospheric stability and wind speed and direction can have a significant effect on fire behavior. Winds fan fires with oxygen, increasing the rate at which fire spreads across the landscape. Weather is the most unpredictable component governing fire behavior, constantly changing in time and across the landscape.

Topography

Fires burning in similar fuel conditions burn very differently under varying topographic conditions. Topography alters heat transfer and localized weather conditions, which in turn influence vegetative growth and resulting fuels. Changes in slope and aspect can have significant influences on how fires burn. Generally speaking, north slopes tend to be cooler, wetter, more productive sites. This can lead to heavy fuel accumulations, with high fuel moistures, later curing of fuels, and lower rates of spread. In contrast, south and west slopes tend to receive more direct sun, and thus have the highest temperatures, lowest soil and fuel moistures, and lightest fuels. The combination of light fuels and dry sites leads to fires that typically display the highest rates of spread. These slopes also tend to be on the windward side of mountains. Thus these slopes tend to be "available to burn" a greater portion of the year.

Slope also plays a significant role in fire spread, by allowing preheating of fuels upslope of the burning fire. As slope increases, rate of spread and flame lengths tend to increase. Therefore, we can expect the fastest rates of spread on steep, warm south and west slopes with fuels that are exposed to the wind.

Fuels

Fuel is any material that can ignite and burn. Fuels describe any organic material, dead or alive, found in the fire environment. Grasses, brush, branches, logs, logging slash, forest floor litter, conifer needles, and buildings are all examples. The physical properties and characteristics of fuels govern how fires burn. Fuel loading, size and shape, moisture content, and continuity and arrangement all have an effect on fire behavior. Generally speaking, the smaller and finer the fuels, the faster the potential rate of fire spread. Small fuels such as grass, needle litter and other fuels less than a quarter inch in diameter are most responsible for fire spread. In fact, "fine" fuels, with high surface to volume ratios, are considered the primary carriers of surface fire. This is apparent to anyone who has ever witnessed the speed at which grass fires burn. As fuel size increases, the rate of spread tends to decrease due to a decrease in the surface to volume ratio. Fires in large fuels generally burn at a slower rate, but release much more energy and burn with much greater intensity. This increased energy release, or intensity, makes these fires more difficult to control. Thus, it is much easier to control a fire burning in grass than to control a fire burning in timber.

When burning under a forest canopy, the increased intensities can lead to torching (single trees becoming completely involved) and potential development of crown fires. That is, they release much more energy. Fuels are found in combinations of types, amounts, sizes, shapes, and arrangements. It is the unique combination of these factors, along with the topography and weather, which determines how fires will burn.

The study of fire behavior recognizes the dramatic and often-unexpected effect small changes in any single component have on how fires burn. It is impossible to speak in specific terms when predicting how a fire will burn under any given set of conditions. However, through countless observations and repeated research, some of the principles that govern fire behavior have been identified and are recognized.

Wildfire Hazards

In the 1930s, wildfires consumed an average of 40 to 50 million acres per year in the contiguous United States, according to US Forest Service estimates. By the 1970s, the average acreage burned had been reduced to about 5 million acres per year. Over this time period, fire suppression efforts were dramatically increased and firefighting tactics and equipment became more sophisticated and effective. For the 11 western states, the average acreage burned per year since 1970 remained relatively constant at about 3.5 million acres per year.

The severity of a fire season can usually be determined in the spring by how much precipitation is received, which in turn, determines how much fine fuel growth there is and how long it takes this growth to cure out. These factors, combined with annual wind events in late summer, drastically increase the chance a fire start will grow and resist suppression activities. Furthermore, harvest is also occurring at this time. Occasionally, harvesting equipment causes an ignition that can spread into populated areas and timberlands.

Fire was once an integral function of the majority of ecosystems in eastern Washington. The seasonal cycling of fire across the landscape was as regular as the July, August, and September lightning storms plying across the mountains. Depending on the plant community composition, structural configuration, and buildup of plant biomass, fire resulted from ignitions with varying intensities and extent across the landscape. Shorter return intervals between fire events often resulted in less dramatic changes in plant composition (Johnson 1998). The fires burned from 1

to 47 years apart, with most at 5- to 20-year intervals (Barrett 1979). With infrequent return intervals, plant communities tended to burn more severely and be replaced by vegetation different in composition, structure, and age (Johnson *et al.* 1994). Native plant communities in this region developed under the influence of fire, and adaptations to fire are evident at the species, community, and ecosystem levels. Fire history data (from fire scars and charcoal deposits) suggest fire has played an important role in shaping the vegetation in the Columbia Basin for thousands of years (Steele *et al.* 1986, Agee 1993).

Wildfire Ignition Profile

Detailed records of fire ignitions and extents have been compiled by the Washington Department of Natural Resources and the Lincoln County Fire Districts. Using the data on past fire extents and ignition, the occurrence of wildland fires in the region of Lincoln County has been evaluated.

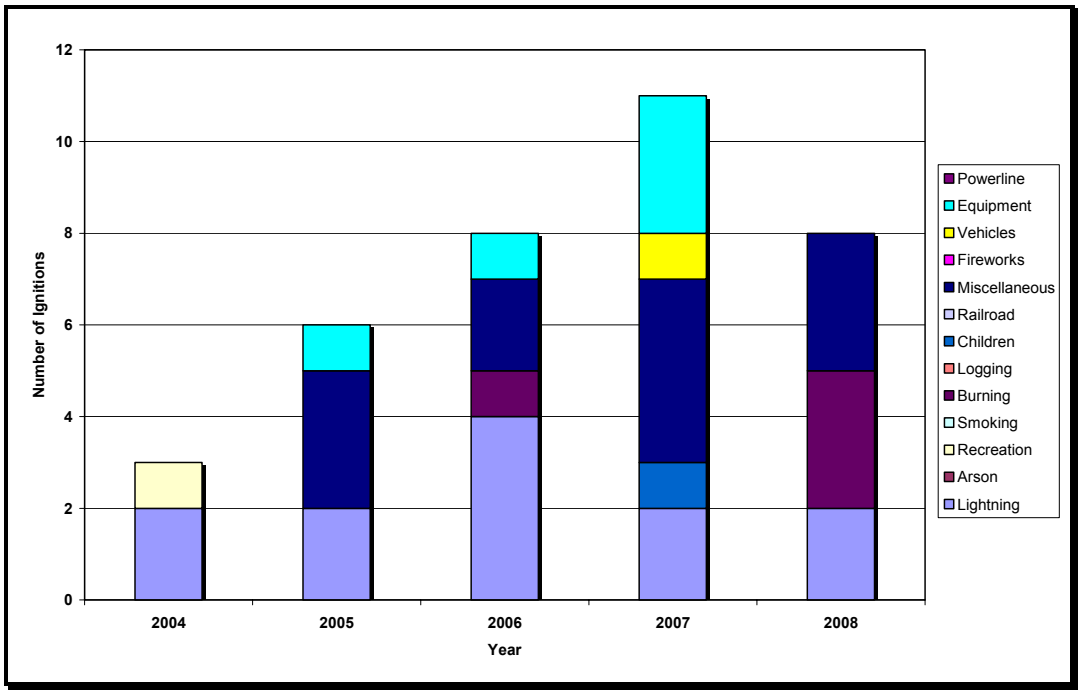
The Washington Department of Natural Resources database used in this analysis includes ignition and extent data from 2004 through 2008 for wildfires occurring on DNR protected lands, which are located primarily north of Highway 2 in Lincoln County. An analysis of the DNR reported wildfire ignitions in Lincoln County reveals that during this period over 25,000 DNR-protected acres burned as a result of 36 wildfire ignitions. The Miscellaneous ignition source category resulted in both the most number of ignitions and by far the most acres burned. However, the majority of the acres burned in this category occurred in 2008 as a result the Swanson Lake Fire (19,096 acres). Fires ignited by lightning and equipment contributed to a significant amount of ignitions and total acres burned. An average of 7 fires and 5,100 acres burned per year was recorded during this period.

Table 4.1. Summary of ignitions in Lincoln County from Washington DNR database 2004-2008.

Cause	Acres Burned	Percent	Number of Ignitions	Percent
Lightning	29	0%	12	33%
Arson	-	0%	0	0%
Recreation	150	1%	1	3%
Smoking	-	0%	0	0%
Burning	39	0%	4	11%
Logging	-	0%	0	0%
Children	3	0%	1	3%
Railroad	-	0%	0	0%
Miscellaneous	22,847	89%	12	33%
Fireworks	-	0%	0	0%
Vehicles	1	0%	1	3%
Equipment	2,661	10%	5	14%
Powerline	-	0%	0	0%
Total	**25,729**	**100%**	**36**	**100%**

The "Miscellaneous" category includes ignitions originating from burning material from aircraft, electric fence, hot ashes, spontaneous combustion (other than sawdust piles), use of fire (other than logging), woodcutting, and an "other" category.

Figure 4.1. Washington DNR Recorded Ignitions 2004-2008.



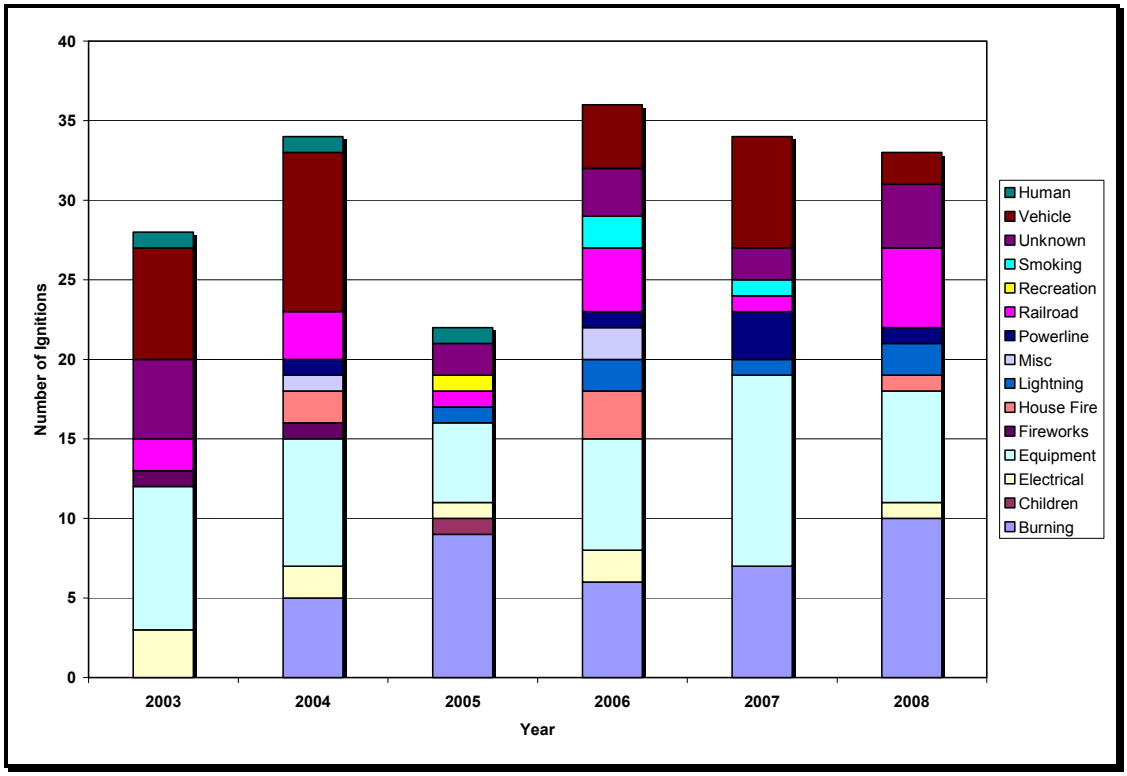
In order to capture the full breadth of the wildfire ignitions in Lincoln County, ignition and extent data was compiled from most of the local fire district's records. This database includes ignition and extent data from Lincoln County Fire District #1, #6, #7, #8, and #9 from 2003 through 2008. Although this data helps to more accurately describe the wildland fire potential in the County, many of the fires may have been reported by more than one district resulting in duplicated entries. Additionally, many of these fires are also included in the Washington DNR database.

Table 4.2. Summary of ignitions in Lincoln County reported by local fire districts 2003-2008.

Cause	Acres Burned	Percent	Number of Ignitions	Percent
Burning	294	1%	37	20%
Children	1	0%	1	1%
Electrical	14	0%	9	5%
Equipment	9,170	18%	48	26%
Fireworks	9	0%	2	1%
House Fire	130	0%	6	3%
Lightning	19,205	37%	6	3%
Miscellaneous	2	0%	3	2%
Powerline	46	0%	6	3%
Railroad	50	0%	16	9%
Recreation	1,000	2%	1	1%
Smoking	3	0%	3	2%
Unknown	2,642	5%	16	9%
Vehicle	7,376	14%	30	16%
Human	12,051	23%	3	2%
Total	**51,992**	**100%**	**187**	**100%**

This database augments the DNR's data by showing that lightning, equipment, and vehicle fires are significantly contributing to the number of acres burned each year while burning, equipment, and vehicles are accountable for the most number of ignitions.

Figure 4.2. Ignition Data Recorded by Local Fire Districts 2003-2008.



Ideally, historical fire data would be used to estimate the annual probability for fires in Lincoln County. However, current data are not adequate to make credible calculations because the data for local, state, and federal responsibility areas are not reported by the same criteria. Nevertheless, the data reviewed above provide a general picture of the level of wildland-urban interface fire risk for Lincoln County overall.

Wildfire Extent Profile

Across the west, wildfires have been increasing in extent and cost of control. Data summaries for 2000 through 2006 are provided and demonstrate the variability of the frequency and extent of wildfires nationally.

Table 4.3. National Fire Season Summaries.

Statistical Highlights	2000	2001	2002	2003	2004	2005	2006
Number of Fires	122,827	84,079	88,458	85,943	77,534	66,753	96,385
10-year Average ending with indicated year	106,393	106,400	103,112	101,575	100,466	89,859	87,788
Acres Burned	8,422,237	3,555,138	6,937,584	4,918,088	6,790,692	8,689,389	9,873,745
10-year Average ending with indicated year	3,786,411	4,083,347	4,215,089	4,663,081	4,923,848	6,158,985	6,511,469
Structures Burned	861	731	2,381	5,781	1,095	--	--
Estimated Cost of Fire Suppression (Federal agencies only)	$1.3 billion	$917 million	$ 1.6 billion	$1.3 billion	$890 million	$876 million	--

The National Interagency Fire Center maintains records of fire costs, extent, and related data for the entire nation. Tables 4.3 and 4.4 summarize some of the relevant wildland fire data for the nation and some trends that are likely to continue into the future unless targeted fire mitigation efforts are implemented and maintained. According to these data, the total number of fires is trending downward while the total number of acres burned is trending upward. Since 2000 there has been a significant increase in the number of acres burned.

Table 4.4. Total Fires and Acres 1960 - 2008 Nationally.

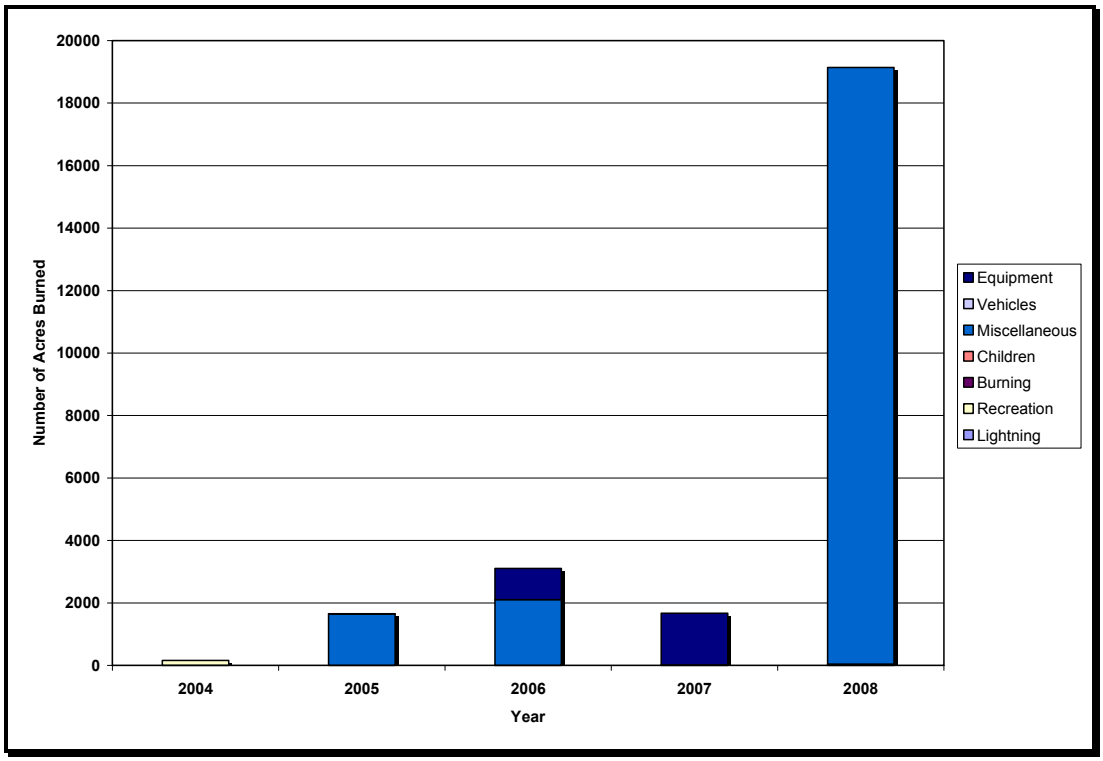
Year	Fires	Acres	Year	Fires	Acres
2008	68,594	4,723,810	**1994**	114,049	4,724,014
2007	85,822	9,321,326	**1993**	97,031	2,310,420
2006	96,385	9,873,745	**1992**	103,830	2,457,665
2005	66,753	8,689,389	**1991**	116,953	2,237,714
2004	77,534	6,790,692	**1990**	122,763	5,452,874
2003	85,943	4,918,088	**1989**	121,714	3,261,732
2002	88,458	6,937,584	**1988**	154,573	7,398,889
2001	84,079	3,555,138	**1987**	143,877	4,152,575
2000	122,827	8,422,237	**1986**	139,980	3,308,133
1999	93,702	5,661,976	**1985**	133,840	4,434,748
1998	81,043	2,329,709	**1984**	118,636	2,266,134
1997	89,517	3,672,616	**1983**	161,649	5,080,553
1996	115,025	6,701,390	**1982**	174,755	2,382,036
1995	130,019	2,315,730	**1981**	249,370	4,814,206
			1980	234,892	5,260,825

(National Interagency Fire Center 2007)

These statistics are based on end-of-year reports compiled by all wildland fire agencies after each fire season. The agencies include: Bureau of Land Management, Bureau of Indian Affairs, National Park Service, US Fish and Wildlife Service, Forest Service, and all state agencies.

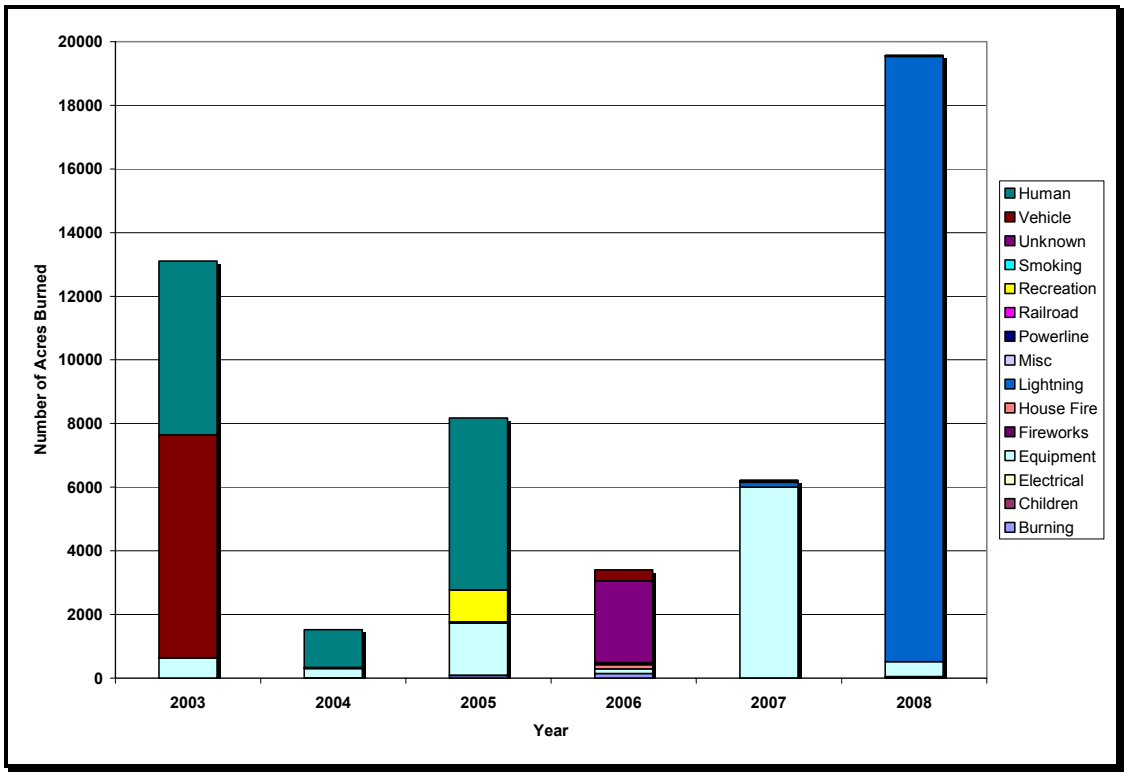
Figures 4.3 and 4.4 show the extent of wildfires by acreage burned per year as reported by both the Washington DNR and the local fire districts in Lincoln County. The fire suppression agencies in Lincoln County respond to numerous wildland fires each year, but few of those fires grow to a significant size. According to national statistics, only 2% of all wildland fires escape initial attack. However, that 2% accounts for the majority of fire suppression expenditures and threatens lives, properties, and natural resources. These large fires are characterized by a size and complexity that require special management organizations drawing suppression resources from across the nation. These fires create unique challenges to local communities by their quick development and the scale of their footprint.

Figure 4.3. Acres Burned as Recorded by Washington DNR 2004-2008.



Figures 4.3 and 4.4 show the extent of wildfires by acreage burned per year as reported by both the Washington DNR and the local fire districts in Lincoln County. While the DNR's data show the "Miscellaneous" and "Equipment" categories as accounting for most of the ignition sources, the fire district's causal data is much more varied. The local district's data reflect that the "Equipment," "Lightning," and "Vehicle" categories are responsible for the most number of acres burned. It should be noted; however, that the DNR has reported the Swanson Lake Fire in the "Miscellaneous" cause category while Lincoln County Fire District #6 has reported the fire as being caused by lightning.

Figure 4.4. Acres Burned as Recorded by Local Fire Districts 2003-2008.



Wildfire Hazard Assessment

Lincoln County was analyzed using a variety of models managed on a Geographic Information System (GIS) system. Physical features of the region including roads, streams, soils, elevation, and remotely sensed images were represented by data layers. Field visits were conducted by specialists from Northwest Management, Inc. and others. Discussions with area residents and local fire suppression professionals augmented field visits and provided insights into forest health issues and treatment options. This information was analyzed and combined to develop an objective assessment of wildland fire risk in the region.

Historic Fire Regime

Historical variability in fire regime is a conservative indicator of ecosystem sustainability, and thus, understanding the natural role of fire in ecosystems is necessary for proper fire management. Fire is one of the dominant processes in terrestrial systems that constrain vegetation patterns, habitats, and ultimately, species composition. Land managers need to understand historical fire regimes, the fire return interval (frequency) and fire severity prior to settlement by Euro-Americans, to be able to define ecologically appropriate goals and objectives for an area. Moreover, managers need spatially explicit knowledge of how historical fire regimes vary across the landscape.

Many ecological assessments are enhanced by the characterization of the historical range of variability, which helps managers understand: (1) how the driving ecosystem processes vary from site to site; (2) how these processes affected ecosystems in the past; and (3) how these processes might affect the ecosystems of today and the future. Historical fire regimes are a

critical component for characterizing the historical range of variability in fire-adapted ecosystems. Furthermore, understanding ecosystem departures provides the necessary context for managing sustainable ecosystems. Land managers need to understand how ecosystem processes and functions have changed prior to developing strategies to maintain or restore sustainable systems. In addition, the concept of departure is a key factor for assessing risks to ecosystem components. For example, the departure from historical fire regimes may serve as a useful proxy for the potential of severe fire effects from an ecological perspective.

Table 4.5. Assessment of Historic Fire Regimes in Lincoln County.

Description	Percent	Acres
0-35 Year Return Interval, Low and Mixed Severity	0%	5,993
0-35 Year Return Interval, Replacement Severity	1%	10,910
35-200 Year Fire Return Interval, Low and Mixed Severity	71%	1,066,984
35-200 Year Return Interval, Replacement Severity	26%	388,048
200+ Year Return Interval, Any Severity	0%	3,578
Water	1%	16,665
Barren	0%	1,280
Sparsely Vegetated	0%	4
Indeterminate Fire Regime	0%	3,020
Total	**100%**	**1,496,482**

The table above shows the amount of acreage in each defined historic fire regime in Lincoln County. The historic fire regime model in Lincoln County shows that much of the northern rim and channeled scabland areas historically had a 35 to 200-year fire return interval and typically experienced stand replacement severity fires. Areas historically characterized as open rangelands that have now been converted to agriculture also had a greater than 35-year fire return interval, but these areas burned at lower intensities. There are also small pockets in the northeastern corner of Lincoln County that historically had a less than 35-year fire return interval and burned at low to mixed severity. This difference is likely due to the more variable topography and presence of forest stands in this area.

A map of Historic Fire Regimes in Lincoln County as well as an explanation of how the data were derived is included in Appendix 1 and 3, respectively.

Fire Regime Condition Class

A natural fire regime is a general classification of the role fire would play across a landscape in the absence of modern human mechanical intervention, but including the influence of aboriginal burning (Agee 1993, Brown 1995). Coarse scale definitions for historic fire regimes have been developed by Hardy *et al.* (2001) and Schmidt *et al.* (2002) and interpreted for fire and fuels management by Hann and Bunnell (2001).

A fire regime condition class (FRCC) is a classification of the amount of departure from the historic regime (Hann and Bunnell 2001). The three classes are based on low (FRCC 1), moderate (FRCC 2), and high (FRCC 3) departure from the central tendency of the natural (historical) regime (Hann and Bunnell 2001, Hardy *et al.* 2001, Schmidt *et al.* 2002). The central tendency is a composite estimate of vegetation characteristics (species composition, structural stages, stand age, canopy closure, and mosaic pattern); fuel composition; fire frequency, severity,

and pattern; and other associated natural disturbances. Low departure is considered to be within the natural (historical) range of variability, while moderate and high departures are outside.

An analysis of Fire Regime Condition Classes in Lincoln County shows that a significant portion of the county is either moderately departed (30%) or severely departed (9%) from its natural fire regime and associated vegetation and fuel characteristics. In most scenarios, the more departed an area is from its natural fire regime, the higher the wildfire potential; however, this is not true 100% of the time.

Table 4.6. Assessment of Current Condition Class in Lincoln County.

	Condition Class	Percent	Acres
1	Condition Class 1	2%	25,353
2	Condition Class 2	30%	448,064
3	Condition Class 3	9%	130,418
5	Water	1%	16,665
6	Urban	3%	41,462
7	Barren	0%	1,280
8	Sparsely Vegetated	0%	4
9	Agriculture	56%	833,236
	Total	**100%**	**1,496,482**

Of the acres in Lincoln County that have not been converted for agricultural uses, there are very few areas that still maintain their historic fire regime. Most of the channeled scabland areas are defined as Condition Class 2 or moderately departed from the historical regime. The most severely departed areas (Condition Class 3) occur in the southeastern corner of the County near Sprague and along the river breaks on the northern end of the County, particularly along Columbia River.

A map depicting Fire Regime and Condition Class as well as a more in-depth explanation of Fire Regime Condition Class is presented in the Appendix 1 and 3, respectively.

Lincoln County's Wildland-Urban Interface

The wildland-urban interface (WUI) has gained attention through efforts targeted at wildfire mitigation; however, this analysis technique is also useful when considering other hazards because the concept looks at where people and structures are concentrated in any particular region.

A key component in meeting the underlying need for protection of people and structures is the protection and treatment of hazards in the wildland-urban interface. The wildland-urban interface refers to areas where wildland vegetation meets urban developments or where forest fuels meet urban fuels such as houses. The WUI encompasses not only the interface (areas immediately adjacent to urban development), but also the surrounding vegetation and topography. Reducing the hazard in the wildland-urban interface requires the efforts of federal, state, and local agencies and private individuals (Norton 2002). "The role of [most] federal agencies in the wildland-urban interface includes wildland firefighting, hazard fuels reduction, cooperative prevention and education, and technical experience. Structural fire protection [during a wildfire] in the wildland-urban interface is [largely] the responsibility of Tribal, state, and local governments" (USFS 2001). The role of the federal agencies in Lincoln County is and will be much more limited. Property owners share a responsibility to protect their residences and businesses and minimize

danger by creating defensible areas around them and taking other measures to minimize the risks to their structures (USFS 2001). With treatment, a WUI can provide firefighters a defensible area from which to suppress wildland fires or defend communities against other hazard risks. In addition, a WUI that is properly treated will be less likely to sustain a crown fire that enters or originates within it (Norton 2002).

By reducing hazardous fuel loads, ladder fuels, and tree densities, and creating new and reinforcing existing defensible space, landowners can protect the WUI, the biological resources of the management area, and adjacent property owners by:

- minimizing the potential of high-severity ground or crown fires entering or leaving the area;
- reducing the potential for firebrands (embers carried by the wind in front of the wildfire) impacting the WUI. Research indicates that firebrands from a crown fire can ignite additional wildfires as far as 1¼ miles away during periods of extreme fire weather and fire behavior (McCoy *et al.* 2001);
- improving defensible space in the immediate areas for suppression efforts in the event of wildland fire.

Three WUI conditions have been identified (Federal Register 66(3), January 4, 2001) for use in wildfire control efforts. These include the Interface Condition, Intermix Condition, and Occluded Condition. Descriptions of each are as follows:

- **Interface Condition** – a situation where structures abut wildland fuels. There is a clear line of demarcation between the structures and the wildland fuels along roads or back fences. The development density for an interface condition is usually 3+ structures per acre;
- **Intermix Condition** – a situation where structures are scattered throughout a wildland area. There is no clear line of demarcation; the wildland fuels are continuous outside of and within the developed area. The development density in the intermix ranges from structures very close together to one structure per 40 acres; and
- **Occluded Condition** – a situation, normally within a city, where structures abut an island of wildland fuels (park or open space). There is a clear line of demarcation between the structures and the wildland fuels along roads and fences. The development density for an occluded condition is usually similar to that found in the interface condition and the occluded area is usually less than 1,000 acres in size.

In addition to these classifications detailed in the Federal Register, Lincoln County has included two additional classifications to augment these categories:

- **Rural Condition** – a situation where the scattered small clusters of structures (ranches, farms, resorts, or summer cabins) are exposed to wildland fuels. There may be miles between these clusters.
- **High Density Urban Areas** – those areas generally identified by the population density consistent with the location of incorporated cities, however, the boundary is not necessarily set by the location of city boundaries or urban growth boundaries; it is set by very high population densities (more than 7-10 structures per acre).

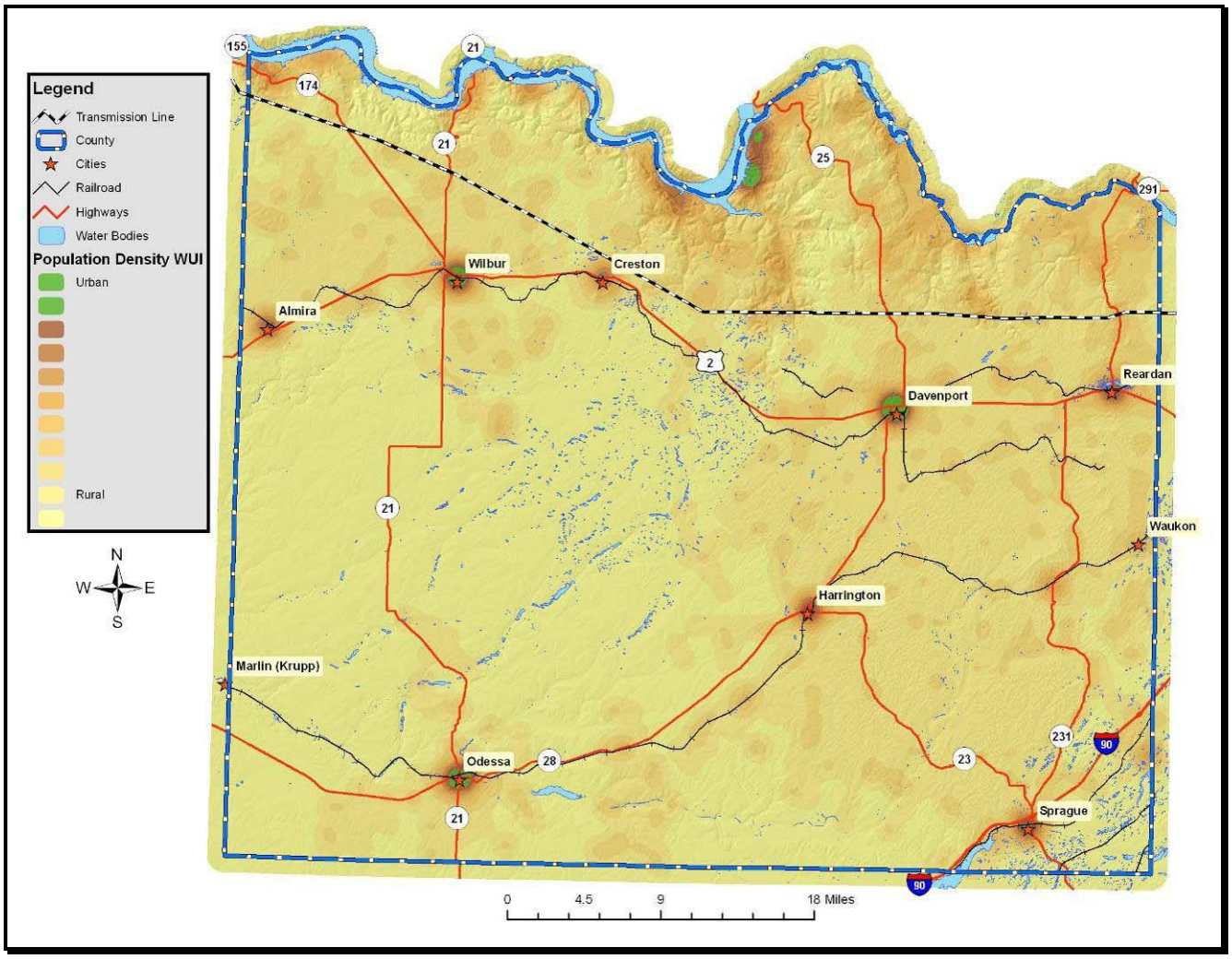
Lincoln County's wildland-urban interface (WUI) is based on population density. Relative population density across the county is estimated using a GIS-based kernel density population model that uses object locations to produce, through statistical analysis, concentric rings or areas of consistent density. To graphically identify relative population density across the county, structure locations are used as an estimate of population density. For this analysis, physical addresses were used as an estimate of structure location. Lincoln County's GIS department produced a 911 address data layer that was used to represent structure location as input for the model. The resulting output identified the extent and level of population density throughout the county. Highly populated areas are easily discernable from low population areas using this method, which enables the determination of urban verses rural populations. Rural areas of the WUI have an approximate density of one structure per 40 acres. The model also showed several small islands where no structures were recorded. Based on the planning committee's review and discussion, the final WUI boundary output was adjusted to incorporate the non-populated areas (no structures) due to their small size and scattered nature as well as their location in high fire risk areas.

By evaluating structure density in this way, WUI areas can be identified on maps by using mathematical formulae and population density indexes. The resulting population density indexes create concentric circles showing high density areas, interface, and intermix condition WUI, as well as rural condition WUI (as defined above). This portion of the analysis allows us to "see" where the highest concentrations of structures are located in reference to high risk landscapes, limiting infrastructure, and other points of concern.

The WUI, as defined here, is unbiased and consistent, allows for edge matching with other counties, and most importantly – it addresses all of the county, not just federally identified communities at risk. It is a planning tool showing where homes and businesses are located and the density of those structures leading to identified WUI categories. It can be determined again in the future, using the same criteria, to show how the WUI has changed in response to increasing population densities. It uses a repeatable and reliable analysis process that is unbiased.

The Healthy Forests Restoration Act makes a clear designation that the location of the WUI is at the determination of the county or reservation when a formal and adopted CWPP is in place. It further states that the federal agencies are obligated to use this WUI designation for all Healthy Forests Restoration Act purposes. The Lincoln County Community Wildfire Protection Plan planning committee evaluated a variety of different approaches to determining the WUI for the county and selected this approach and has adopted it for these purposes. In addition to a formal WUI map for use by the federal agencies, it is hoped that it will serve as a planning tool for the county, the Washington Department of Natural Resources, and local fire districts.

Figure 4.5. Wildland-Urban Interface Map in Lincoln County, Washington.



Potential WUI Treatments

The definition and mapping of the WUI is the creation of a planning tool to identify where structures, people, and infrastructure are located in reference to each other. This analysis tool does not include a component of fuels risk. There are a number of reasons to map and analyze these two components separately (population density vs. fire risk analysis). Primary among these reasons is the fact that population growth often occurs independent from changes in fire risk, fuel loading, and infrastructure development. Thus, making the definition of the WUI dependent on all of them would eliminate populated places with a perceived low level of fire risk today, which may in a year become an area at high risk due to forest health issues or other concerns.

By examining these two tools separately, the planner is able to evaluate these layers of information to see where the combination of population density overlays areas of high current fire risk and then take mitigative actions to reduce the fuels, improve readiness, directly address factors of structural ignitability, improve initial attack success, mitigate resistance to control factors, or (more often) a combination of many approaches.

It should not be assumed that just because an area is identified as being within the WUI, that it will therefore receive treatments because of this identification alone. Nor should it be implicit

that all WUI treatments will be the application of the same prescription. Instead, each location targeted for treatments must be evaluated on its own merits: factors of structural ignitability, access, resistance to control, population density, resources and capabilities of firefighting personnel, and other site specific factors.

It should also not be assumed that WUI designation on national or state lands automatically equates to a treatment area. The federal and state agencies are still obligated to manage lands under their control according to the standards and guides listed in their respective land management plans. Their adopted management plans have legal precedence over the WUI designation until such a time as these plans are revised to reflect updated priorities.

Most treatments may begin with a home risk evaluation, and the implicit factors of structural ignitability (roofing, siding, deck materials) and vegetation within the treatment area of the structure. However, treatments in the low population areas of rural lands (mapped as yellow) may look closely at access (two ways in and out) and communications through means other than land-based telephones. On the other hand, a subdivision with densely packed homes (mapped as brown – interface areas) surrounded by forests and dense underbrush, may receive more time and effort implementing fuels treatments beyond the immediate home site to reduce the probability of a crown fire entering the subdivision.

Landscape Risk Assessments

Lincoln County is located in northeast Washington. The county encompasses approximately 2,311 square miles and has an elevation range of 980 to 3,500 feet above sea level. Land is owned by private individuals, corporations, the state of Washington, and the federal government. Federal lands are managed by the Bureau of Land Management, National Park Service, and the Bureau of Reclamation. State lands include parcels managed by the Washington Department of Natural Resources and Washington Department of Fish and Wildlife. Lincoln, the seventh largest county in the state, is bordered on the west by Grant County, to the south by Adams and Whitman County, to the east by Spokane County, and to the north by Stevens County, Ferry County, and a small part of Okanogan County. Lincoln County lies within the channeled scablands of the Columbia Basin, a region formed by ice age flooding and wind blown volcanic ash. Many small pothole lakes are scattered throughout the scoured basalt scablands connected by Lake Creek and Crab Creek on the southern and eastern side of the county. The terrain is predominantly flat with alternating rolling hills and shallow canyons or coulees. Along the northern boundary the topography becomes steep as it plunges into wide valleys formed by the Spokane and Columbia Rivers. The mild climate, abundance of sunshine and low annual precipitation results in an environment that is potentially very prone to wildland fire. Although much of the native grasslands have been converted for agricultural purposes, there are many areas of native vegetation and fallow farm land that cures early in the summer and remains combustible until winter. If ignited, theses areas burn rapidly, potentially threatening people, homes, and other valued resources.

Cover vegetation and wildland fuels exhibited across the county have been influenced by massive geologic events during the Pleistocene era that scoured and shifted the earths surface leaving areas of deep rich soil interspersed with rocky canyons and deep valleys. In addition to the geological transformation of the land, wildland fuels vary within a localized area based on slope, aspect, elevation, management practices, and past disturbances. Geological events and other factors have created distinct landscapes that exhibit different fuel characteristics and wildfire concerns.

In order to facilitate a mutual understanding of wildfire risks specific to commonly known areas in the county, the landscape-level wildfire risk assessments in the following sections are based on four predominant landscapes types that exhibit distinct terrain and wildland fuels. The four landscapes identified for the assessments are: agricultural lands, channeled scablands, western river breaks and eastern river breaks. These landscapes, although intermixed in some areas, exhibit specific fire behavior, fuel types, suppression challenges, and mitigation recommendations that make them unique from a planning perspective.

Overall Fuels Assessment

The gentle terrain that dominates Lincoln County facilitates extensive farming and ranching operations. Agricultural fields occasionally serve to fuel a fire after curing; burning in much the same manner as low grassy fuels. Fires in grass and rangeland fuel types tend to burn at relatively low intensities with moderate flame lengths and only short-range spotting. Common suppression techniques and resources are generally quite effective in this fuel type. Homes and other improvements can be easily protected from direct flame contact and radiant heat through adoption of precautionary measures around structures. Rangelands with a significant shrub component will have much higher fuel loads with greater spotting potential than grass and agricultural fuels. Although fires in agricultural and rangeland fuels may not present the same control problems as those associated with large, high intensity fires in timber, they can cause significant damage if precautionary measures have not been taken prior to a fire event. Wind driven fires in these fuel types spread rapidly and can be difficult to control. During extreme drought and when pushed by high winds, fires in agricultural and rangeland fuels can exhibit extreme rates of spread, which complicates suppression efforts.

Forest and woodland fuels are mostly present in the canyons and river breaks on sloping terrain less favorable to clearing for agricultural development. A patchwork of ponderosa pine and Douglas-fir stands occupy sheltered areas on favorable soil where moisture is not a limiting factor. Wooded areas tend to be on steep terrain intermingled with grass and shrubland providing an abundance of ladder fuels which lead to horizontal and vertical fuel continuity. These factors, combined with arid and windy conditions characteristic of the river valleys in the region, can result in high intensity fires with large flame length and fire brands that may spot long distances. Such fires present significant control problems for suppression resources and often results in large wildland fires.

Development is rapidly occurring along the Spokane and Columbia River breaks on the north side of the county. Many people have purchased small tracts of land in this location and built dwellings amongst the trees and shrubland. Scenic vistas and rolling topography with close proximity to Lake Roosevelt National Recreation Area make this area desirable. However, the risk of catastrophic loss from wildfires in this area is significant. Fires igniting along the bottom of the canyon have the potential to grow at a greater rate of speed on the steeper slopes and rapidly advance to higher elevations. Within the forest and woodland areas, large fires may easily produce spot fires up to 2 miles away from the main fire, compounding the problem and creating fires on many fronts. Fire suppression efforts that minimize loss of life and structures in this area are largely dependent upon access, availability and timing of equipment, prior fuels mitigation activities, and public awareness.

Overall Mitigation Activities

There are many specific actions that will help improve safety in a particular area; however, there are also many potential mitigation activities that apply to all residents and all fuel types. General mitigation activities that apply to all of Lincoln County are discussed below while area-specific mitigation activities are discussed within the individual landscape assessments.

The safest, easiest, and most economical way to mitigate unwanted fires is to stop them before they start. Generally, prevention actions attempt to prevent human-caused fires. Campaigns designed to reduce the number and sources of ignitions can take many forms. Traditional "Smokey Bear" type campaigns that spread the message passively through signage can be quite effective. Signs that remind people of the dangers of careless use of fireworks, burning when windy and leaving unattended campfires have been effective. Fire danger warning signs posted along access routes remind residents and visitors of the current conditions. It's impossible to say just how effective such efforts actually are; however, the low costs associated with posting of a few signs is inconsequential compared to the potential cost of fighting a fire.

Burn Permits: Washington State Department of Natural Resources is the primary agency issuing burn permits in forested areas of Lincoln County. The Washington DNR burn permits regulate silvicultural burning. Washington Department of Ecology (DOE) is the primary agency issuing burn permits for improved property and agricultural lands. All DOE burn permits are subject to fire restrictions in place with WA DNR & local fire protection districts. Washington DNR has a general burning period referred to as "Rule Burn" wherein a written burn permit is not required in low to some moderate fire dangers.

The timeframes for the Rule Burn are from October 16th to June 30th. Washington DNR allows for Rule Burns to be ten foot (10') piles of forest, yard, and garden debris. From July 1st to October 15th if Rule Burns are allowed, they are limited to four foot (4') piles.

Defensible Space: Effective mitigation strategies begin with public awareness campaigns designed to educate homeowners of the risks associated with living in a flammable environment. Residents of Lincoln County must be made aware that home defensibility starts with the homeowner. Once a fire has started and is moving toward a structure or other valued resources, the probability of that structure surviving is largely dependent on the structural and landscaping characteristics of the home. "Living with Fire, A Guide for the Homeowner" is an excellent tool for educating homeowners as to the steps to take in order to create an effective defensible space. Residents of Lincoln County should be encouraged to work with local fire departments and fire management agencies within the county to complete individual home site evaluations. Home defensibility steps should be enacted based on the results of these evaluations. Beyond the homes, forest management efforts must be considered to slow the approach of a fire that threatens a community.

Evacuation Plans: Development of community evacuation plans are necessary to assure an orderly evacuation in the event of a threatening wildland fire. Designation and posting of escape routes would reduce chaos and escape times for fleeing residents. Community safety zones should also be established in the event of compromised evacuations. Efforts should be made to educate homeowners through existing homeowners associations or creation of such organizations to act as conduits for this information.

Accessibility: Also of vital importance is the accessibility of the homes to emergency apparatus. If a home cannot be protected safely, firefighting resources will not jeopardize lives to protect a

structure. Thus, the fate of the home will largely be determined by homeowner actions prior to the event. In many cases, homes' survivability can be greatly enhanced by following a few simple guidelines to increase accessibility such as widening or pruning driveways and creating a turnaround area for large vehicles.

Fuels Reduction: Recreational facilities such as campgrounds and boat launches along Lake Roosevelt should be kept clean and maintained. In order to mitigate the risk of an escaped campfire, escape proof fire rings and barbeque pits should be installed and maintained. Surface fuel accumulations in forests and shrubland can be kept to a minimum by periodically conducting pre-commercial thinning, clearing, pruning and limbing, and possibly controlled burns. Other actions that would reduce the fire hazard would be creating a fire resistant buffer along roads and power line corridors and strictly enforcing fire-use regulations.

Emergency Response: Once a fire has started, how much and how large it burns is often dependent on the availability of suppression resources. In most cases, rural fire departments are the first to respond and have the best opportunity to halt the spread of a wildland fire. For many districts, the ability to reach these suppression objectives is largely dependent on the availability of functional resources and trained individuals. Increasing the capacity of departments through funding and equipment acquisition can improve response times and subsequently reduce the potential for resource loss.

Other Activities: Other specific mitigation activities are likely to include improvement of emergency water supplies, access routes, and management of vegetation along roads and power line right-of-ways. Furthermore, building codes should be revised to provide for more fire-conscious construction techniques such as using fire resistant siding, roofing, and decking in high risk areas.

Agricultural Landscape Risk Assessment

The agricultural landscape is widespread across Lincoln County. Vast areas of deep, rich soil deposits provide for extensive agriculture development. Lincoln County is the second highest wheat and barley producing county in the state. Other crops include grass seed, oats, hay and potatoes as well as extensive areas of fallow land set aside in the CRP. Most of these crops are vulnerable to wild fire at certain times of the year. The agriculture landscape is the predominant cover vegetation and fuel type throughout the county dominating the south, northwest and east central portions of the county. Interspersed throughout this landscape are stream channels and rocky scabland areas. Landownership in the agricultural landscape is predominantly private with many sections owned by the State of Washington and scattered federal holdings. The major populated centers within this landscape type include Davenport, Harrington, Creston, Wilbur, Almira and Reardan. Other rural development found throughout the agricultural landscape includes individual farms, small subdivisions, railroad sidings and grain elevators. Development is widely distributed. New development occurs primarily near communities and along major roads. Occasionally farmland is subdivided between family members for new home sites or for development of new farming facilities. Most of the pressure for multi-housing subdivisions occurs in close proximity to existing towns. In nearly all developed areas, structures are in close proximity to vegetation that becomes a significant fire risk at certain times of the year.

Wildfire Potential

Wildfire potential in the agricultural landscape is moderate in the rural farmland and moderate to high in the shrubby draws and waterways, pastures, and scattered patches of scabland. Virtually

all of the populated areas within the agricultural landscape face similar challenges related to wildfire control and opportunities for fuels mitigation efforts. Farming and ranching activities have the potential to increase the risk of a human-caused ignition. Large expanses of crops, CRP, rangeland or pasture provide areas of continuous fuels that may threaten homes and farmsteads. Under extreme weather conditions, escaped fires in these fuels could threaten individual homes or a town site; however, this type of fire is usually quickly controlled. Clearings and fuel breaks disrupt a slow moving wildfire enabling suppression before a fire can ignite heavier fuels. High winds increase the rate of fire spread and intensity of crop and rangeland fires. It is imperative that homeowners implement fire mitigation measures to protect their structures and families prior to a wildfire event in these areas.

Wildfire risk in the agricultural landscape is at its highest during late summer and fall when crops are cured and daily temperatures are at their highest. A wind-driven fire in agricultural fuels or dry native fuel complexes would produce a rapidly advancing, but variable intensity fire. Fires burning in some types of unharvested fields would be expected to burn more intensely with larger flame lengths due to the greater availability of fuels resulting from the higher productivity of the vegetation. Fields enrolled in the CRP or set aside for wildlife habitat can burn very intensely due to an increased amount of fuel build-up from previous years' growth. Fires in these types of fuels are harder to extinguish completely due to the dense duff layer, often leading to hold over fires that may reemerge at a later date causing additional fire starts.

Ingress-Egress

Residents living in the populated centers and most subdivisions surrounding the towns have access to municipal water supply systems with public fire hydrants. Outside these areas, development relies on individual, co-op, or multiple-home well systems. Creeks, ponds, and developed drafting areas provide water sources for emergency fire suppression in the rural areas to a limited extent. Irrigation systems are capable of providing additional water supply for suppression equipment on a limited basis. Additional water resources distributed and documented through out the agricultural landscape are needed to provide water for fire suppression.

There are a few bridges in the agricultural landscape of Lincoln County. Bridge load rating signs are mostly in place for the existing bridges and do not impose a limitation to access for firefighting equipment.

Local public electrical and telephone utility lines travel both above and below ground along roads and highways with limited exposure to failure during a wildfire event. Cell phone service is well-established in most parts of the county with only limited dead zones.

Infrastructure

Urban residents throughout most of agricultural landscape area have municipal water systems, which includes a network of public fire hydrants. New development is required by the International Fire Code to have hydrant placement in their development plan. Subdivisions and development outside municipal boundaries typically rely on community water systems or multiple-home well systems.

Above ground, high voltage transmission lines cross the planning area in many directions in corridors cleared of most vegetation, which provides for a defensible space around the power line infrastructure and may provide a control point for fire suppression, if well maintained. Local public electrical utility lines are both above and below ground traveling through back yards and along roads and highways. Many of these lines are exposed to damage from falling

trees and branches. Power and communications may be cut to some of these during a wildfire event.

Fire Protection

The agricultural landscape type is present in all of the fire districts in Lincoln County with the exception of Fire District 9 in the northwest corner of the county. The fire districts provide structural fire protection as well as wildland fire protection. Mutual aid agreements between fire districts supplement wildland fire protection when needed. Additional fire protection is provided by the Washington DNR, which provides wildfire protection and suppression on privately owned forestland and state-owned forestland north of Highway 2 in Lincoln County. The DNR does not provide structural fire suppression, but does provide wildfire protection on non-forested land that threatens DNR-protected lands. The BLM provides wildfire protection on their ownership within Lincoln County and has mutual aid agreements with the DNR for protection of forested land. BLM also does not provide structural fire suppression.

Potential Mitigation Activities

Mitigation measures needed in the agricultural landscape include maintaining a defensible space around structures and access routes that lie adjacent to annual crops and other wildland fuels. Around structures, this includes maintaining a green or plowed space, mowing weeds and other fuels away from outbuildings, pruning and/or thinning larger trees, using fire resistant construction materials, and locating propane tanks, fuel tanks and firewood away from structures. Roads and driveways accessing rural residents may or may not have adequate road widths and turnouts for firefighting equipment depending on when the residences were constructed. Performing road inventories in high risk areas to document and map their access limitations will improve firefighting response time and identify areas in need of enhancement. Primitive or abandoned roads that provide key access to remote areas should also be maintained in such a way that enables access for emergency equipment so that response times can be minimized. Roads can be made more fire resistant by frequently mowing along the edges or spraying weeds to reduce the fuels. Aggressive initial attack on fires occurring along travel routes will help ensure that these ignitions do not spread to nearby home sites. Designing a plan to help firefighters control fires in CRP lands that lie adjacent to agricultural crops would significantly lessen a fire's potential of escaping to the higher value resource. Mitigation associated with this situation might include installing fuel breaks or plowing a fire resistant buffer zone around fields and along predesigned areas to tie into existing natural or manmade barriers or implementing a prescribed burning program during less risky times of the year.

Maintaining developed drafting sites, increasing access to water from irrigation facilities, and developing other water resources throughout the agricultural landscape will increase the effectiveness and efficiency of emergency response during a wildfire.

Channeled Scablands Landscape Risk Assessment

The channeled scablands are a dominant landscape in Lincoln County. This unique geological feature was created by ice age floods that swept across eastern Washington and down the Columbia River Plateau periodically during the Pleistocene era. The massive erosion caused by the flood events scoured the landscape down to the underlying basalt creating vast areas of rocky cliffs, river valleys, channel ways and pothole lakes. Typical vegetation found throughout this landscape is grass, mixed shrub and sagebrush with areas of wetlands, marsh, ponderosa pine islands, cultivated crops and CRP fields. The channeled scablands landscape prevails in the central, southern and southeastern portions of the county and along the major waterways of Crab

Creek, Blue Stem Creek, Lake Creek and Cow Creek. Landownership is predominantly private with large acreages owned by the State of Washington and the Bureau of Land Management. State ownership includes school sections 16 and 36, and the Swanson Lakes Wildlife Area managed by the Washington Department of Fish and Wildlife. BLM ownership includes large continuous holdings of rangeland with developed campgrounds, lakes, boat launches, and other recreation areas and interpretive sites. Private landownership includes cattle ranches and in holdings of cultivated farmland and CRP fields. Major population centers within the channeled scabland landscape include Sprague, Odessa, and the Fish Trap Lake area. New development occurs primarily near communities and along major roads. Most of the pressure for multi-housing subdivisions occurs in close proximity to the towns. Rural development is widely dispersed consisting primarily of isolated ranching headquarters, home sites, irrigation systems, and developed springs or wells. In nearly all developed areas, structures are in close proximity to vegetation that becomes a significant fire risk at certain times of the year.

Wildfire Potential

The channeled scablands landscape has a moderate to high wildfire potential due to a characteristically high occurrence of shrubby fuels mixed with grass, sloping terrain and somewhat limited access. Large expanses of open rangeland or pasture provide a continuous fuel bed that could, if ignited, threaten structures and infrastructure under extreme weather conditions. Cattle grazing will often reduce fine, flashy fuels reducing a fire's rate of spread; however, high winds increase the rate of fire spread and intensity of rangeland fires. A wind-driven fire in dry, native fuel complexes on variable terrain produces a rapidly advancing, very intense fire with large flame lengths, which enables spotting ahead of the fire front.

Wildfire risk in the channeled scablands landscape is at its highest during summer and fall when daily temperatures are high and relative humidity is low. Fires burning in some types of unharvested fields would be expected to burn more intensely with larger flame lengths due to the greater availability of fuels. Fields enrolled in conservation programs or managed for wildlife habitat, can burn very intensely due to an increased amount of fuel build-up from previous years' growth. Fires in this fuel type are harder to extinguish completely due to the dense duff layer, which often leads to hold-over fires that may reemerge at a later date causing additional fire starts.

Ingress-Egress

U.S. Highway 2 and State Routes 28 and 23 are the primary emergency access routes traveling east to west through the county. State Routes 21, 25, 174, and 231 are the primary access routes running north and south. Interstate 90 passes through the southeast corner of the county. County roads as well as rural ranch access roads are well distributed throughout most of the channeled scablands often following section lines or traversing the multitude of draws and drainage ways. In remote rural areas, county roads often change from a paved or maintained gravel surface to unimproved primitive roads making access possible only during certain times of the year. Limited access within remote areas and a lack of maintenance on existing travel routes, increases fire suppression response time and has a direct effect on fire spread leading to increased fire size and destructive potential.

Infrastructure

Residents living in the populated centers of Sprague and Odessa have access to municipal water supply systems with public fire hydrants. Outside these areas, development relies on individual, co-op or multiple-home well systems. Creeks, ponds and developed drafting areas provide water sources for emergency fire suppression in the rural areas to a limited extent. Water tanks have

been set up at several ranches throughout the area as a supplemental water supply during fire season. Irrigation systems are capable of providing additional water supplies for suppression equipment on a limited basis. Additional water resources distributed and documented throughout the agricultural landscape are needed to provide adequate water for fire suppression.

Public utility lines travel both above and below ground along roads and cross-country to remote facilities. Many irrigation systems and wells rely on above ground power lines for electricity. These power poles pass through areas of dense wildland fuels that could be destroyed or compromised in the event of a wildfire. Cell phone service is well established in most parts of the county with only limited dead zones.

Fire Protection

The channeled scablands landscape type is present in all of the fire districts in Lincoln County. The fire districts provide structural fire protection as well as wildland fire protection. Mutual aid agreements between fire districts supplement the wildland fire protection response when needed. Additional fire protection is provided by the Washington DNR, which provides wildfire protection and suppression on privately-owned forestland and state-owned forestland north of Highway 2 in Lincoln County. The DNR does not provide structural fire suppression, but it does provide wildfire protection on non-forested land that threatens DNR-protected lands. BLM provides wildfire protection on their lands within Lincoln County and has mutual aid agreements with the DNR for protection of forested land. BLM also does not provide structural fire suppression.

Potential Mitigation Activities

Mitigation measures needed in the channeled scabland landscape include maintaining a defensible space around structures and access routes that lie adjacent to wildland fuels. Around structures this includes maintaining a green or plowed space, mowing weeds and other fuels away from outbuildings, pruning and/or thinning larger trees, using fire resistant construction materials, and locating propane tanks and firewood away from structures. Roads and driveways accessing rural development need to be kept clear of encroaching fuels to allow escape and access by emergency equipment. Performing road inventories in high risk areas and documenting and mapping their access limitations will improve firefighting response time and identify areas in need of improvement. Primitive or abandoned roads that provide key access to remote areas should be maintained to allow access for emergency equipment so that emergency response times are minimized. Designing a plan to help firefighters control fires in conservation lands and wildlife habitat areas will significantly lessen a fire's potential of escaping to other areas. Mitigation associated with this situation might include managed grazing in designated fuel reduction areas, creating fuel breaks, and implementing a prescribed burning program during less risky times of the year.

Additional mitigation activities include installing more water storage sites, improving water access from irrigation facilities, and developing other water resources throughout the landscape. This will increase the effectiveness and efficiency of emergency response during a wildfire.

Western River Breaks Landscape Risk Assessment

The western river breaks landscape encompasses an area in the northwest corner of Lincoln County in the Columbia River breaks from the county line near Coulee Dam to Keller Ferry. This area is predominantly shrub-steppe grassland on steep broken terrain and escarpments sloping into the southern shore of Lake Roosevelt. Shrub-steppe grasslands are a mixed plant

community consisting of bunch-grasses, forbs, and a variety of shrubs including big sage brush, rabbit brush, and antelope brush. Some soil types within this area support isolated pockets of Douglas-fir and ponderosa pine forest, but the area is dominated by shrub and grassland from the agricultural fields at the top of the breaks to the water's edge at Lake Roosevelt. Landownership in this area is mostly privately held parcels with several large tracts owned by the Bureau of Reclamation, National Park Service, and The Nature Conservancy. Major population clusters include the subdivisions of Columbia Springs, Lake View Terrace Trailer Park, FDR Estates, The Spring Canyon area, and the Keller Ferry area. Subdivision of land for recreational and home site development is widespread along the lakeshore. In nearly all developed areas, structures are in close proximity to vegetation on steep slopes that become a significant fire risk at certain times of the year.

Wildfire Potential

Wildfire potential in the western river breaks landscape is high due to past fire exclusion, steep broken terrain and the introduction of invasive grasses. Prior to settlement, the historic fire regime consisted of small, relatively frequent fires that created a mosaic or patchwork of shrubs mixed with discontinuous areas of bunchgrass. Recent introduction of organized fire suppression along with cattle grazing and land development for agriculture have disrupted this fire regime, allowing wide spread establishment of fire-intolerant sagebrush and invasive grasses. This heavy buildup of brush species over vast acres indicates that future fires will be more frequent with higher intensities and cover larger areas than in the past. High intensity fires in large expanses of continuous fuels may threaten structures and infrastructure under extreme weather conditions. A wind-driven fire in dry native fuel complexes on variable terrain produces a rapidly advancing very intense fire with large flame lengths capable of widespread damage. High wildfire risk in the western river breaks landscape typically lasts from late March to mid October.

Ingress-Egress

State Routes 174 and 21 are the primary access routes running through the western river breaks landscape. Other access routes include Spring Canyon Road, various unimproved gravel roads, and private roads into home sites and housing subdivisions. In remote rural areas, unimproved primitive roads are often seasonal allowing access during the dry season only. Limited access within remote areas and lack of maintenance on existing travel routes increases fire suppression response time and has a direct effect on fire spread that could lead to increased fire size and risk potential.

Many private homes and subdivisions are accessed via unimproved, single-lane roads accessible only by small emergency vehicles. Often, access roads and driveways are steep and/or lined with wildland fuels that can limit or prohibit safe access during a wildfire. Many of these roads have only one way in and one way out and lack adequate turnout and turn-around areas for emergency vehicles. The inability of emergency resources to safely access structures reduces or may even eliminate suppression response. Most of the roads in newer subdivisions have been designed to accommodate emergency vehicles with either loop roads or cul-de-sacs with wide turning radii and easily negotiable grades, which are better-suited to all types of emergency response equipment.

Infrastructure

Residents living in the Columbia Springs subdivision and Keller Ferry area have access to municipal water supply systems with fire hydrants. Outside these areas, development relies on

individual, co-op, or ranch well systems. Creeks, ponds, and developed drafting areas and cisterns provide water sources for emergency fire suppression in the rural areas to a limited extent. Additional water resources distributed and documented throughout the western river breaks landscape are needed to provide a consistent source of water for fire suppression.

Local public electrical and telephone utility lines travel both above and below ground along roads and highways with limited exposure to failure during a wildfire event. Cell phone service is spotty along the canyon.

Fire Protection

Two fire districts provide structural and wildland fire protection in the western river breaks landscape. Fire District 9 covers the west side of the area from the Lincoln County line east to Kaufman Canyon. Fire District 7 (Wilbur) covers the remainder of the landscape from Kaufman Canyon east to Keller Ferry. Fire District 9 is a newly established fire district that receives fire protection through a contract with the Grand Coulee Fire Department in Grant County. Fire District 7 fire protection equipment is dispatched out of Wilbur. Additional fire protection is provided by the Washington DNR, which provides wildfire protection and suppression on privately owned forestland and state-owned forestland north of Highway 2 in Lincoln County. The DNR does not provide structural fire suppression, but does provide wildfire protection on non-forested land that threatens DNR-protected lands. The BLM provides wildfire protection on their ownership within Lincoln County and has mutual aid agreements with the DNR for protection of forested land. BLM also does not provide structural fire suppression.

Potential Mitigation Activities

The grass and sagebrush fuels in this landscape are very conducive to rapidly spreading surface fires. During a wildfire event, families in threatened structures would have very little time to protect their homes and evacuate. Therefore, it is very important that a defensible space is maintained around structures prior to an ignition. Keeping a clean and green yard and using fire resistant construction materials will help reduce the risk of loss to fire. Homeowners along Lake Roosevelt should be even more vigilant about maintaining a fuel break between their homes and the shoreline as fires caused by recreational use on the reservoir could start at any time with little warning or chance for suppression by the fire department. The use of campfires, fireworks, and other potential ignition sources should be highly regulated during the fire season, especially in areas adjacent to structures and development. Using escape-proof fire rings and BBQ pits at recreational areas, limiting off-road vehicle use to designated trails, and restricting fireworks will help reduce the potential for an ignition.

Eastern River Breaks Landscape Risk Assessment

The eastern river breaks landscape includes an area of the Columbia and Spokane River breaks in the north central to northeast corner of Lincoln County from Keller Ferry to the eastern county line. This area is a mix of upland forest and shrub-steppe grassland with areas of agriculture on steep broken terrain and escarpments sloping into the southern shore of Lake Roosevelt and the Spokane River. Douglas-fir and ponderosa pine is the predominant forest tree species. Forested areas are widely distributed throughout the eastern river breaks occupying areas with favorable slope, aspect, soil, and moisture. Shrub-steppe grasslands are a mixed plant community consisting of bunch-grasses, forbs, and a variety of shrubs including big sage brush, rabbit brush, and antelope brush. This vegetation pattern exists throughout the landscape from the agricultural fields at the top of the breaks to the shoreline at Lake Roosevelt and the Spokane River.

Landownership in this area is mostly privately held parcels with several large tracts owned by the Bureau of Reclamation, National Park Service, Washington Department of Natural Resources, or Bureau of Land Management. Subdivision of land for recreational and home site development is widespread along the Lake Roosevelt National Recreation Area. Major population clusters include the subdivisions of Townsend Estates, Devils Gap, Spring Canyon, Moccasin Bay, Porcupine Bay, Seven Bays, Deer Meadows, Keller Ferry, and Hanson Harbor, which are all located in close proximity to the shoreline. In nearly all developed areas, structures coexist with wildland fuels on steep slopes that become a significant fire risk at certain times of the year.

Wildfire Potential

Wildfire potential in the eastern river breaks landscape is high due to past fire exclusion, steep broken terrain and the introduction of invasive grasses. Prior to settlement in the area, the fire regime was small, relatively frequent fires, which created a mosaic or patchwork of shrubs mixed with discontinuous areas of bunchgrass and widely spaced timber. Recent introduction of organized fire suppression along with cattle grazing and land development for agriculture and home sites have disrupted this fire regime allowing widespread establishment of fire-intolerant sagebrush, dense stands of fire tolerant and intolerant timber species, and establishment of invasive grasses. This heavy buildup of brush and timber over vast acres on steep terrain indicates that future fires will be more frequent with higher intensities over larger acreages creating a significant threat to the scattered human occupation of the area.

Ingress-Egress

State Routes 21, 25, 231, Miles-Creston Road, and Mill Canyon Road are the primary access routes running through the eastern river breaks landscape. Other access routes include a variety of unimproved gravel county roads and private roads into home sites and housing subdivisions, many on steep winding grades. In remote areas, unimproved primitive roads are often seasonal allowing access during the dry season only. Limited access within the remote areas and lack of maintenance on existing travel routes increases fire suppression response time and has a direct effect on fire spread leading to increased fire size and risk potential.

Many private homes and subdivisions are accessed via unimproved, single-lane roads accessible only by small emergency vehicles. Often access roads and driveways are steep and/or lined with wildland fuels that can limit or prohibit access during a wildfire. Many of these roads have one way in and one way out and lack adequate turnout and turn-around areas for emergency vehicles. The inability of emergency resources to safely access structures reduces or may even eliminate suppression response. Roads in newer subdivisions have been designed to accommodate emergency vehicles with either loop roads or cul-de-sacs with wide turning radii and easily negotiable grades, which are better-suited to all types of emergency response equipment.

Infrastructure

Residents living in the eastern river breaks landscape have limited access to an established fire hydrant system. Most rely on subdivision, co-op, or private wells for their water supply. Creeks, ponds and developed drafting areas and cisterns provide water sources for emergency fire suppression in the rural areas to a limited extent. Additional water resources distributed and documented throughout the eastern river breaks landscape are needed to provide a consistent source of water for fire suppression.

Local public electrical and telephone utility lines travel both above and below ground along roads and highways with limited exposure to failure during a wildfire event. Cell phone service is spotty in the canyon.

Fire Protection

Three fire districts provide structural and wildfire protection in the western river breaks landscape. Fire District 7 (Wilbur) covers the west side of the area from the Keller Ferry to Hawk Creek. Fire District 5 (Davenport) covers from Hawk Creek to Mill Canyon, and Fire District 4 (Reardan) covers fire protection from Mill Canyon to the eastern county line. These fire districts provide structural fire protection as well as wildland fire protection. Additional protection is provided by the Washington DNR, which provides wildfire protection and suppression on privately owned forestland and state-owned forestland north of Highway 2 in Lincoln County. The DNR does not provide structural fire suppression, but does provide wildfire protection on non-forested land that threatens DNR-protected lands. The BLM provides wildfire protection on their ownership within Lincoln County and has mutual aid agreements with the DNR for protection of forested land. BLM also does not provide structural fire suppression.

Potential Mitigation Activities

The mixed fuels and steep, variable terrain present in this landscape are very conducive to rapidly spreading, highly destructive wildfires. During a wildfire event, families in threatened structures would have very little time to protect their homes and evacuate. Due to the location of fire suppression services, response time would be slow. Response may also be limited in many areas due to inadequate access and water supply. Therefore, it is very important that a defensible space is maintained around structures prior to an ignition. Keeping a clean and green yard and using fire resistant construction materials on homes and other structures will help reduce the risk of loss to fire. Homeowners along Lake Roosevelt should be even more vigilant about maintaining a fuel break between fuels along the reservoir and their homes as fires caused by recreational use can start at any time with little warning or chance for suppression by the fire department. The use of campfires, fireworks, and other potential ignition sources should be highly regulated during the fire season especially in areas adjacent to structures and development. Using escape proof fire rings and BBQ pits at recreational areas, limiting off-road vehicle use to designated trails, and restricting fireworks will help reduce the potential for an ignition.

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Chapter 5

Fire Protection

Fire agency personnel are often the first responders during most emergencies. In addition to structural fire protection, they are called on during wildland fires, floods, landslides, and other events. The following is a summary of the agencies in Lincoln County and their resources and capabilities. A map of the Lincoln County fire districts and department boundaries is presented in Appendix 1.

Local Fire District Summaries

The firefighting resources and capabilities information provided in this section is a summary of information provided by the fire chiefs or representatives of the wildland firefighting agencies listed. Each organization completed a survey with written responses. Their answers to a variety of questions are summarized here. These synopses indicate their perceptions and information summaries.

Appendix 4 contains contact information and a complete equipment list for each of the following fire service organizations.

Wilbur Fire Department

Department Summary: The town of Wilbur is located in west central Lincoln County. It has a population of 900 and is 4 square miles. The town fire department has the same personnel as Lincoln County Fire District #7. The department shares the Wilbur fire station with District #7; however, the department does have its own fire equipment. The Wilbur Fire Department has 2 city pumper trucks and 2 Basic Life Support ambulances.

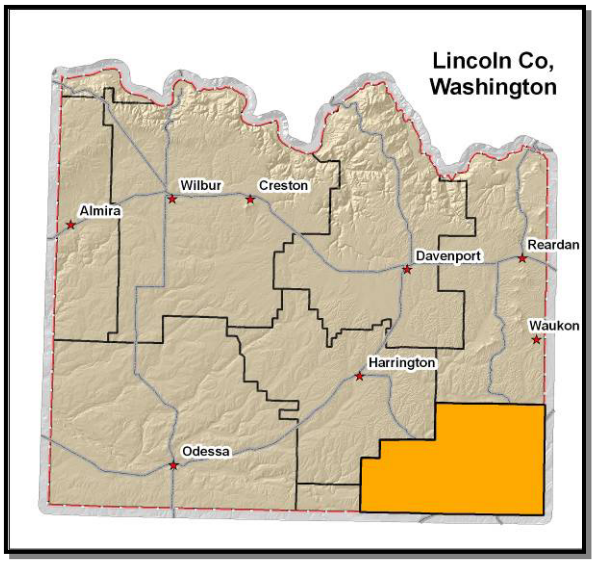
Issues of Concern: The town of Wilbur is surrounded by sage brush, CRP, and wheat fields. It also has 2 petroleum storage plants and 2 large grain elevators. With these potentially high risk components as well as many old buildings, the department's resources could easily be exhausted with any type of fire.

District Needs: The town of Wilbur needs many more fire hydrants for both structure fires and wildland fire defense. The department needs the new generation fire shelters to be able to stay in compliance with new regulations. Funding sources for the department are very scarce. With ever changing federal policies, the Wilbur Department could be required to purchase additional equipment and personal protective equipment in the near future.

Lincoln County Fire District #1

District Summary: Lincoln County Fire District #1 is a volunteer fire district that provides all fire and ambulance services for 400 square miles in the southeast corner of Lincoln County. The topography is typically agricultural, steppe plateau, and channeled scab lands. The district contains approximately 63 households consisting of a total of approximately 200 persons. Also in the district's service area are the City of Sprague, 17 miles of Interstate 90, 17 miles of the Burlington Northern rail line, and 10 miles of Union Pacific rail line. Each day 32,000 automobiles pass through the district on Interstate 90 alone. The Interstate is responsible for two out of every three emergency calls. Interstate 90 provides no tax revenues to the district and does not in any way contribute to staffing levels.

The district carries a roster of 22 volunteers regularly. Of these volunteers, many are only available on a limited basis. Between the railroad, Interstate, and local lake resorts there are many potential ignition sources during the summer months. In 2008, the district responded to 25 active fires. These fires ranged from small confined fires to large fires consuming hundreds of acres. Most resulted from unintentional human ignition caused by vehicles on the Interstate or the 57 trains that travel through the district every 24 hours.



Issues of Concern: Lincoln County Fire District#1 has identified several issues that need to be addressed. Inadequate daytime staffing during summer months has been a very high concern. The district relies on a small community to provide the volunteer manpower to carry out operations that require many trained firefighters to safely and efficiently execute.

In addition to staffing, the district fire station has become inadequate to house the district's apparatus. The current station is leased from the City of Sprague and is too small to house all of the districts equipment and apparatus. There is inadequate room for regular meetings and volunteer training sessions, which are essential to firefighting operations. In December of 2008, the current station sustained damage from six feet of snowfall. At this time, the walls of the station are cracked through to the outside showing daylight through the damaged areas. The structural integrity of the building is significantly threatened by these cracks as well as the location of the building in a floodplain. Replacement of the current building is imperative to the safety and continued operations of Lincoln County Fire District #1.

Water supply has also been identified as a concern. At this time the district relies on one water tender with a 4200 gallon capacity. Once empty, the water tender must leave a fire scene to re-fill.

Training to National Wildfire Coordination Group (NWCG) requirements has vastly improved at Lincoln County Fire District #1, but the task has been difficult. At this time, the district has half of its volunteers trained to Firefighter 2 standards. Necessary classes have been hard to come by

during months when the primarily agricultural-based community members are available. Currently, the district has no members qualified to teach these classes or refresh the firefighters on an annual basis as required by NWCG. The training is expensive and time consuming.

District Needs: The district has been actively pursuing remedies to the above mentioned issues of concern. Members are trying very hard to attend classes that will allow them to advance their wildland certification. The district desperately needs qualified individuals who are available to teach classes on flexible schedules. The most appropriate solution to this problem is to have persons in the district who are carded and qualified to teach the classes.

The district also needs a second water tender with two large drop tanks that would allow shuttle operations on a fire scene. A grant has been applied for through the AFG grant program to achieve this goal. The district does not have the revenues to complete this project without grant funding.

The most feasible solution to the fire station and staffing concern is the construction of a new fire station and the creation of a residency program including the hiring of three firefighters for the summer months. The new fire station will replace a 60 year old failing station that is inadequate for current operations. The district is actively pursuing funding for this project through US Senate appropriations due to a lack of funding elsewhere.

Lincoln County Fire District #3

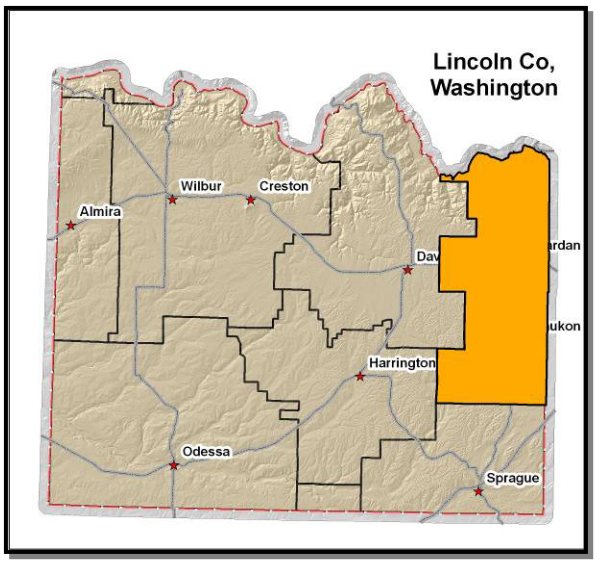
District Summary: Fire District #3 is a large district with 622 square miles and only 598 residents. It contains large areas of sage brush with very few natural fire breaks.

Issues of Concern: New laws are passed without any funding to implement them. Every year it gets harder to find firefighters who are willing and able to respond to calls.

District Needs: Fire District #3 needs a new station, updated trucks, and more volunteers in rural areas.

Lincoln County Fire District #4

District Summary: Lincoln County Fire District #4 protects 288 square miles consisting of farm ground, scablands, timber; and the Town of Readan and the communities of Edwall, Long Lake, and Waukon. District staffing consists of 12 volunteers at Edwall, 25 volunteers at Reardan, and three seasonal volunteers at Long Lake. Paging is handled by the Lincoln County Sheriff. In 2008, the District responded to 150 calls with 80% of these calls being EMS. District #4 has a participant in the Lincoln Countywide Mutual Aid Agreement and has agreements with Spokane County Fire Districts #3 and #5 and Stevens County Fire District #1. District #4 has an automatic response with Spokane County District #5 on structural fires and some EMS calls and has an automatic response when wildland dispatch is high. A DNR agreement is in place for areas north of Highway 2. There are currently no District #4 volunteers with Red Cards; the firefighters have department training in wildland firefighting and the District has not committed to Statewide mobilization.



Issues of Concern: Communications for District #4 are provided through LComm (Lincoln County Communications) with several repeaters. The problem is that the areas north of Reardan, especially by the Spokane River, have very little reception. The repeater on Magnuson Butte has not always provided the coverage around Edwall it was supposed to provide and has led to crews from Reardan and Edwall not being able to communicate. The switch to narrow band in the future could exacerbate coverage problems.

District #4 is always trying to keep current with new standards and replace vehicles in a timely manner; however, budget constraints continue to make this difficult.

Wildland/Urban interface areas are expanding north of Reardan and east of Edwall. Several of these developments have poor access roads and signage that make response to these areas difficult and often dangerous.

Water supply outside the limits of Reardan, Edwall and Long Lake are handled by tender shuttle with some help from the local farm chemical companies. A good water source north of Reardan near the Spokane River would reduce turn around times.

District Needs: The District is in need of wildland equipment including fire shelters, back pack pumps, hand tools, and the ability to upgrade/replace these items on a regular basis. Also newer personal protection clothing to replace the banana suits currently in use and the ability to upgrade/replace on a regular basis are a necessity.

The District's vehicle needs include a Class A Pumper for Edwall and brush/attack engines to replace some of the 30+ year old vehicles currently in service. The addition of smaller wheel base wildland Engines would help with response.

Communication needs include anything that would improve current coverage and will be able to adapt to future requirements.

District #4 needs to improve its available water resources. Specifically, the addition of two storage tanks north of Reardan in the Bald Ridge area and along Highway 231 or the installation of permanent wells would drastically improve the District's turnaround time. Highway 231 could have its needs filled by being having the necessary equipment to hook into existing irrigation systems; however, this only works when the fields are actively being irrigated.

Lincoln County Fire District #5

District Summary: Lincoln County Fire District #5 covers 395 square miles of north central Lincoln County with the Spokane and Columbia Rivers as the northern border and Bluestem as the southern border. The east boundary is midway between Reardan and Davenport while the west boundary is the Telford rest area.

The district has three stations; one in Davenport, one at Egypt, and one at Deer Meadows. There are approximately 45 volunteer firefighters in the district. The district does contract with the DNR for fire patrols in the timbered areas of the district.

The southern portion of the district is comprised of dryland farming (primarily wheat and barley), CRP, and rangeland. The northern portion of the district is mixed with heavy timber as well as a heavy concentration of urban interface along the edges of the two rivers. These structures are both recreational homes as well as permanent residences. There are estimated to be nearly 500 homes within the district's coverage area.

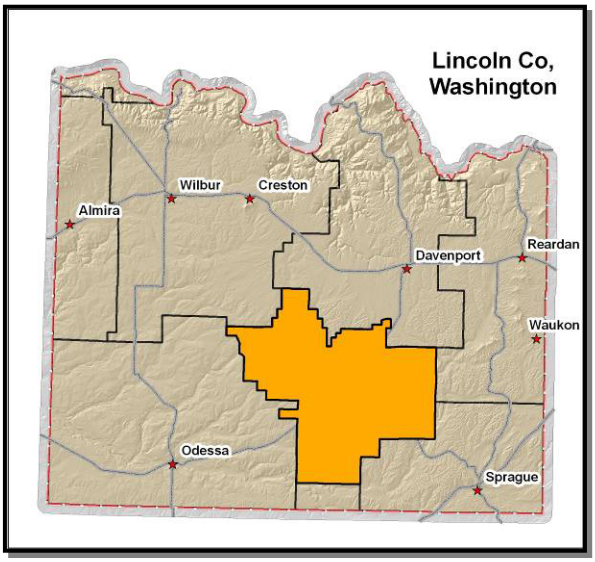
Issues of Concern: Being in an area with approximately 18 inches of annual rainfall, all of the vegetation becomes tinder dry throughout July, August, and September. These are typically the months when the district receives the greatest number of calls. Lincoln County also tends to get numerous lightning storms during this time. The Hawk Creek area north of Davenport has historically received a great number of lightning strikes in the timbered areas. The Hawk Creek area has also seen significant growth in the number of structures being built on the timbered hillsides. Ingress and egress are also an issue of concern for many of the housing developments throughout the district. They are typically one way in, one way out. Water access is limited in many of the rural areas; thus, tanker trucks are required to shuttle water to supply the firefighting units.

As a 100% volunteer department, personnel are limited during the heavy fire season due to vacations, weekends with the family, or their regular employment.

District Needs: An urban interface truck is needed as the residential growth continues. Also, the federal government is mandating the use of narrow band for radio communication; thus, new, narrow band compatible communication equipment will be required and additional repeater sites will be needed to provide adequate communication in the canyons and other remote areas. The district also needs to build a multi-agency fire/EMS station with bays for both fire trucks and ambulances with OSHA-approved exhaust removal systems, meeting rooms, offices, and residency quarters for both organizations.

Lincoln County Fire District #6

District Summary: Lincoln County Fire District #6 currently has 22 volunteers serving a population of approximately 715 residents spread over 292 square miles. The fire station is located in the town of Harrington with 2 trucks stationed remotely during fire season. The primary land use in this area is dryland agriculture. The south, east, and western regions of the district have channeled scablands. The district also protects 24 sections of state and federal land.



Issues of Concern: The district has many square miles of land in its Emergency Medical Service coverage area that has limited accessibility. The lack of roads in the southern and west portions of the district makes those areas difficult access and; therefore, provide adequate service. Hundreds of acres of CRP grass is scattered throughout the district with no fuels breaks to separate the unmanaged CRP from the productive agricultural ground. State and federal lands are not currently grazed as much as they were historically, which is adding to the fine fuel load within those areas (see also "Fire Protection Issues" section at the end of this chapter). A major railroad also runs through the district often causing fire ignitions.

District Needs: The district would like to improve its fleet of trucks to better serve the outlying areas. There is also a need for additional housing for equipment during the winter months. Currently, the lack of winter storage requires some equipment to be taken out of service. The district would also like to improve and develop additional water storage throughout the service area during the summer.

Lincoln County Fire District #7

District Summary: Lincoln County Fire District #7 encompasses 520 square miles and serves a population of approximately 2,000. The district maintains a station in Wilbur, Creston, and Lincoln. There are 34 volunteer firefighters serving the Wilbur station, 18 serving the Creston station, and 12 serving the Lincoln station. Presently, all of the district's communication equipment is capable of narrow banding.

Issues of Concern: Currently, Fire District #7 will respond to calls in Fire District #9 north of the district's boundaries; however, there is no mutual aid agreement covering this response. Not only does a call in District #9 remove available resources from service within the district's coverage of taxed residents; there are also liability and insurance issues associated with a response outside of the district without an agreement.

Fire District #7 is also concerned with additional acres being bought by the federal government. Additional government property within the district reduces their tax base resulting in less money for the fire district. Additionally, the federally managed land is not being grazed as intensely as it was historically causing more fine fuel buildup and therefore, higher potential fire risk (see also "Fire Protection Issues" section at the end of this chapter)..

District Needs: Fire District #7 is in need of additional wildland and structural turnout gear as well as updated fire shelters. The district also needs three additional fire trucks (one for each station) and updated portable generators. The Creston and Lincoln stations need additions for equipment storage.

Lincoln County Fire District #8

District Summary: Lincoln County Fire District #8 is located in the northwest corner of Lincoln County, Washington. It consists of 168 square miles. The district is narrow spanning seven miles at the widest point and nearly thirty miles in length with a centrally located station in Almira. The Almira station currently has one structural engine, one tender, one light rescue, and four type 3 brush engines and one type 6 brush engine. There are twenty-five volunteer firefighters, ten of which are red card certified and eight have EMS certification. Almira is the only town in the district. Fire District #8 has an approximate population of 750 residents and 300 residential structures. The rolling terrain varies in elevation from 2,818 feet at its highest to just below 1,600 feet. Most of the land is used for agriculture that is a variety of crop fallow rotation to yearly re-cropping. Over the last two decades an ever growing amount of cropland has been removed from production and placed into native grasses under the CRP program. A smaller percentage of the land in District #8 is used for grazing or left unmanaged. It is very challenging to proved fire suppression services to these areas due to the lack of accessibility.

Issues of Concern: One issue in District #8 is that it has a large amount of land with little accessibility and no man-made or natural fuel breaks. In the southern end, there are two large conjoining canyons with a mixture of private and public lands. There are only a couple vehicle access points. A related issue is the growing amount of CRP ground. Due to the lack of use on the roads in these areas, there is less of a need for maintenance leaving fewer, smaller fuel breaks. Another concern is the lack of proper communication with the closing of the narrow band line for radios. District #8 will be left with more "dead" spots in their communication system.

District Needs: District #8 has similar needs to other districts throughout the county. Training is and should always be number one. There is nothing more important than making sure all of the district's firefighters go home safely. Red card classes should be a must for every firefighter. This would help bridge the gap between how the district should fight fires and how the district wants to fight fires. With the transition to narrow band, many additional repeaters will be necessary for effective communication. Finally, the district will need state and federal help on prescribed burns to establish strategically, located fuel breaks.

Lincoln County Fire District #9

District Summary: Currently, Fire District #9 contracts with the Grand Coulee Fire Department in neighboring Grant County for fire protection services.

Issues of Concern: Residents in District #9 are concerned that fire apparatus dispatched out of Grand Coulee has a slow response time to the mid and eastern end of the district due to the longer distance. There are several rapidly developing residential areas along Lake Roosevelt that are intermingled with high risk fuels and have poor access. Representatives from Fire District #9 are currently trying to gather support and funding for the construction of a station and establishment of a functional fire department within the District.

Bureau of Land Management

Spokane District Mission Statement: The mission of the Spokane District is to share our unique capability and interest in sustaining the full diversity of natural and cultural landscapes across Washington State and invite their discovery and use. This includes protecting the natural resources, such as water for fish and wildlife; preserving environmental and cultural values on the lands they manage; providing for multiple uses, that include some commercial activities; and enhancing opportunities for safe and enjoyable outdoor recreation. The Spokane District also assesses energy and mineral resources and works to ensure that their development is in the best interest of the public. Another major responsibility is to ensure consideration of Tribal interests and administration the Department of Interior's trust responsibilities for American Indian Reservation communities.

Spokane District Summary: Up through the 1970's, BLM's policy was to divest ownership of all federal public (BLM) lands in the state of Washington. But in 1980, at the height of the Sage Brush Rebellion (a social movement to give control over federal lands to the states and local authorities), Washington voted to have the public lands remain under federal ownership and management. In the 1980 general election, the state put a measure on the ballot asking voters if the state constitution should "be amended to provide that the state no longer disclaim all rights to unappropriated federal public lands." Approximately 60% of the people and the majority in every county voted no, signaling to BLM that there was strong support for continued federal management of the public lands in the state.

In response to this vote, the Director of BLM approved a proposal by the District to begin a process of consolidating the scattered BLM lands around the state (only about 7,400 acres in Lincoln County) . Today the Spokane District BLM manages almost 80,000 acres in Lincoln County for multiple uses, providing wildfire protection, suppression, support, and training for theBLM managed lands and other federal/state/county agencies.

The Spokane District Fire Management Program currently consists of 2 type six wildland engines (300 gallons) with two full time Engine Captians, four engine crew members, one Fuels Specialist, Seasonal Dispatcher, and a Fire Management Officer (FMO). One engine is stationed in Spokane at the District office and the other in Wenatchee at the field office. There are approximately 16 other specialist (staff) from across the district that assist the Fire Management Program in wildland and/or prescribed fire efforts. With the District's scattered ownership pattern, the engines are usually on scene after initial attack forces have arrived. Our engines and personnel are available for off District and out of state fire assignments that aide in support, training, and experience. The Spokane District BLM has cooperative agreements with the Colville National Forest, DNR, Spokane County FD #10 & #3, Grant County FD #5, Douglas County FD #4, Chelan County FD #1, Benton County FD #1, and Kennewick City FD.

Washington Department of Fish and Wildlife

Summary: The Swanson Lakes Wildlife Areas is approximately 21,000 acres with about 1,280 of that leased from the Department of Natural Resources. Managed as one unit, Swanson Lakes is located in Lincoln County about 10 miles south of the town of Creston in the upper portion of the Crab Creek Watershed. It has numerous pothole lakes, a handful of rim rock lakes, and on intermittent stream, Lake Creek, a tributary of Rock Creek. Within the channeled scablands of the Columbia Plataeau, it also includes plateaus, buttes, and channels. Shrub-steppe and riparian/wetlands are the main habitats. Much of the area is rangeland with some old CRP fields and several hundred acres of restored grassland habitat. A small amount of leased cropland produces cereal grains and hay. Elevation ranges from about 1,640 feet in the southwest to about 2,490 feet in the northeast. Swanson Lakes was acquired mainly between 1993 and 1997 as a Bonneville Power Administration wildlife mitigation project, primarily for Columbian sharp-tailed grouse, a state threatened species. It also supports a mix of species including mule deer, upland game birds, raptors, songbirds, and several reptiles and amphibians.

Issues of Concern: There are currently no safety zones around the Swanson Lakes Wildlife Area office. A fire break is planned along the Seven Springs Dairy Road in the spring of 2009. This will be a vital project since several large fires have recently threatened this area.

Needs: The department needs to update its water tender by replacing the chassis, which would make this piece of equipment much more dependable. The department also needs a large (10,000-12,000) gallon storage tank. This would allow for a faster turnaround time for the tender.

National Park Service

District Summary: The National Park Service, Lake Roosevelt National Recreation Area contracts with the Washington DNR for fire suppression services; however, one type 6 engine is available with 3-6 firefighters in the Kettle Falls or Fort Spokane area on a limited basis from April 1 to November 15.

Issues of Concern: Defensible space around private homes adjacent to NRA lands is being addressed by fuel reduction crews on NRA lands, but is still a concern since many areas have not received treatment that need it. A landowner that has a structure adjacent to NRA lands may ask the Recreation Area to assess and provide assistance if needed, land owner education is still a priority.

Washington Department of Natural Resources

District Summary: The Department of Natural Resources provides wildfire protection and suppression on privately owned forestland and state-owned forestland in the state of Washington.

The Arcadia District of the DNR encompasses approximately 2.1 million acres of private and state lands in the counties of Spokane, Stevens, Lincoln and Pend Oreille in northeast Washington. Mutual Aid Agreements with 18 rural fire protection districts, the Colville National Forest, the Spokane Indian Agency, The Kalispel Indian Agency, US Fish and Wildlife Service, and the National Park Service provide for DNR assistance in fire protection in and adjacent to the Arcadia District. The border of the Arcadia District includes all of Spokane County, the portion of Lincoln County north of US Hwy 2, the portion of Stevens County south of Deer Lake and east of the Hunters divide, and the portion of Pend Oreille County South of Tiger and Sullivan Lake.

Special features within the district include the cities of Spokane and Spokane Valley, the Kalispel Indian Reservation, Spokane Indian Reservation, Turnbull National Wildlife Refuge, Mt. Spokane State Park, Riverside State Park, Lake Roosevelt National Recreation Area, and portions of the Colville National Forest.

The district's primary workstation is located in Deer Park, north of Spokane. The DNR utilizes a "home guard" approach in that the seasonal engine drivers park their assigned engines at their residence within their assigned geographic portion of the district. The Arcadia District staffs eleven 3-person brush engines within the district each season, with one to two engines in the northeastern portion of Lincoln County, one to two engines in south Stevens County, one engine in South Pend Oreille County, and the remainder spread throughout Spokane County. Engine staffing is on a varied schedule that provides seven day per week coverage June through September. The DNR crews are neither trained nor equipped for structure suppression. Primary protection responsibilities are on private and state forestland throughout northeast Washington and the DNR also responds to fires off of DNR jurisdiction that threaten DNR protection.

The DNR does not provide formal EMT services. The crews are trained in first-aid and some staff members have EMT and first-responder training, but this is not a service the DNR provides as part of their organization.

The Arcadia District fire program staff totals 38-40 individuals, including 4 permanent employees, 5 career-seasonal employees who work up to nine months each year and 30 seasonal employees on staff from roughly June to September. These are all paid staff members trained in wildland fire, but not in structure protection. Within the District, an additional 5-8 permanent employees work in other programs, but assist in the fire program during the summer as needed.

The Arcadia District is home to the Airway Heights Camp Program, which staffs five 10-person inmate hand crews trained in wildland fire suppression. The crews are capable of providing initial attack, extended attack and logistical support in the form of a kitchen crew.

The DNR also maintains "call when needed" contracts for dozers and operators trained and equipped for fire suppression throughout the district.

The DNR has six type 2 helicopters based out of Ellensburg. Each is staged and moved throughout the state as conditions warrant. In times of high fire danger there is often a helicopter staged at Colville and occasionally at Deer Park.

The DNR Northeast Region provides, through contract, a fixed-wing platform for Air-Attack during peak fire periods, typically July through August. In addition, Air Attack Group Supervisors with fixed wing platforms are available from Wenatchee and Coeur d' Alene.

The Arcadia District is base to a fixed wing amphibious Air Tanker that is provided by private vendors on contract. It typically is available from late June until the fire season is declared over in the fall, usually late September.

In addition to the fixed wing air tanker in Deer Park, the Arcadia district has access to federal tankers. The Coeur d' Alene and Moses Lake Air Tanker Bases are nearby and often have a type -2 tanker on base during high fire danger periods as well as 3, Single Engine Air Tankers. Retardant reloading is conducted at Coeur d' Alene and Moses Lake. A mobile retardant base is available from Coeur d' Alene. In addition, the DNR is able to utilize Canadian air tankers through agreements.

The Arcadia District maintains a small supply cache with two mop-up support trailers that include portable pumps, hose, and fittings.

Fire Protection Issues

The following sections provide a brief overview of the many difficult issues currently challenging Lincoln County in providing wildland fire protection to citizens. These issues were discussed at length both during the committee process and at several of the public meetings. In most cases, the committee has developed action items (see Chapter 6) that are intended to begin the process of effectively mitigating these issues.

Residential Growth

One challenge Lincoln County faces is the large number of houses in the urban/rural fringe compared to twenty years ago. Since the 1970s, a segment of Washington's growing population has expanded further into traditional forest or resource lands and other rural areas. The "interface" between urban and suburban areas and unmanaged forest and rangelands created by this expansion has produced a significant increase in threats to life and property from fires and has pushed existing fire protection systems beyond original or current design or capability. Many property owners in the interface are not aware of the problems and threats they face and owners have done very little to manage or offset fire hazards or risks on their own property. Furthermore, human activities increase the incidence of fire ignition and potential damage.

It is one of the goals of this document to help educate the public on the ramifications of living in the wildland-urban interface, including their responsibilities as landowners to reduce the fire risk on their property and to provide safe access to their property for all emergency personnel and equipment. Homeowners building in a high fire risk area must understand how to make their properties more fire resistant using proven firesafe construction and landscaping techniques and they must have a realistic understanding of the capability of local fire service organizations to defend their property.

Rural Fire Protection

People moving from urban to more rural areas frequently have high expectations for structural fire protection services. Often, new residents do not realize they that the services provided are not the same as in an urban area. The diversity and amount of equipment and the number of personnel can be substantially limited in rural areas. Fire protection may rely more on the landowner's personal initiative to take measures to protect his or her property. Furthermore, subdivisions on steep slopes and the greater number of homes exceeding 3,000 square feet are also factors challenging fire service organizations. In the future, public education and awareness may play a greater role in rural or interface areas. Great improvements in fire protection techniques are being made to adapt to large, rapidly spreading fires that threaten large numbers of homes in interface, rural, and remote developments.

In most western states, state and federal agencies that have wildland fire protection responsibilities have launched a campaign to reiterate to the public that they do not provide structural fire protection. Much of the increasing costs of wildland fires can be directly related to the increasing number of structures in the wildland urban interface. State and federal agencies are trying to make it clear to the public that land and homeowners are responsible for reducing the fire risk on their property and that the agencies are not responsible for or required to provide structural protection.

The CWPP planning committee has made several recommendations targeting increased wildland fire awareness and education for residents living in or moving into the wildland urban interface of Lincoln County.

Pre-planning in High Risk Areas

Although conducting home, community, and road defensible space projects is a very effective way to reduce the fire risk to communities in Lincoln County, recommended projects cannot all occur immediately and many will take several years to complete. Thus, developing pre-planning guidelines specifying which and how local fire agencies and departments will respond to specific areas is very beneficial. These response plans should include assessments of the structures, topography, fuels, available evacuation routes, available resources, response times, communications, water resource availability, and any other factors specific to an area. All of these plans should be available to the local fire departments as well as dispatch personnel.

One of the main goals of this CWPP is to identify areas with a high risk of experiencing wildland fires and take direct actions to mitigate those risks. However, in areas where mitigation may be difficult or will take a long period of time to implement, pre-disaster and emergency planning measures have been recommended.

Fireworks

Due to Lincoln County's close proximity to both the Spokane and Colville Reservations, fireworks are increasingly available to the public in Lincoln County. Even with the existing fireworks ban during periods of high wildland fire risk, the use of fireworks, particularly in recreational areas, is high. Both the CWPP planning committee and local residents have noted fireworks as a high risk factor for wildfire ignitions. So far, they have not resulted in large fires; however, there are several documented ignitions due to fireworks within Lincoln County.

The CWPP planning committee has identified fireworks as a serious threat to Lincoln County, and thus, has made recommendations for strict regulations and active enforcement of all fireworks-related restrictions.

Accessibility

Fire chiefs throughout the County have identified home accessibility issues as a primary concern in some parts of Lincoln County. Many existing housing developments and private driveways have been constructed without regard to access requirements of large emergency vehicles. Additionally, many of these roads are several miles long and dead end with no warning or plans for future connections to other access roads. The lack of road connectivity and general accessibility in some areas restricts engagement by fire suppression resources. Continued enforcement of Lincoln County's current standards regarding road and driveway construction regulations for fire apparatus would prevent accessibility issues in new developments. Wildfire risk can be lessened and firefighter safety can be improved by keeping vegetation including tall grass, brush, and trees a safe distance from the road right-of-way. This will not only improve accessibility, but will also allow the road to serve as a control point for suppression activities.

Additionally, the fire districts have identified several unimproved and unmaintained county roads that could serve as strategic access points for fire suppression activities if they were maintained periodically for this purpose. In some cases, these roads are partially maintained, but are limited by inadequate or nonexistent bridge crossings.

The planning committee involved in the development of this CWPP found accessibility to be one of the primary difficulties with safe emergency ingress and egress. It is a clear goal of this planning process to continue the enforcement and maintenance of the current road standards countywide. As part of this process, the committee has recommended an action item for improvement of existing substandard roads, driveways, and bridges, where necessary, to improve firefighter safety and suppression effectiveness.

Re-introduction of Grouse Species

The Washington Department of Fish and Wildlife (WDFW), in cooperation with the BLM and the Colville Confederated Tribes, are actively working on the reestablishment of both Columbian sharp-tailed grouse and greater sage-grouse in Lincoln County. Declining populations and distribution of the species in Washington have resulted in serious concerns for their long-term conservation status. The WDFW has begun translocating birds from viable populations in the region to release sites in the Swanson Lakes area.

The CWPP planning committee is concerned that some of the proposed fuels treatments recommended in this document may interrupt the successful establishment of both sage-grouse and sharp-tailed grouse populations in Lincoln County. The protection of these species must be balanced with the need to reduce the wildland fire hazards. The committee agreed that the implementation of fuels reduction projects in potential grouse habitat sites should consider methods that alleviate undue stress on the birds. The planning committee believes that the removal of small portions of grouse habitat in strategic areas may serve as a way to protect larger acreages of habitat from loss due to wildfire. However, every effort should be made to conserve important grouse habitat whenever possible.

Fire-Resistant Construction Materials

Due to the multitude of highly publicized wildland-urban interface fires occurring in the western states, there has been an increased level of research, development, and marketing of more fire-resistant construction materials. Information on high risk materials as well as fire-resistant alternatives can be readily found online or through local fire departments.

The planning committee has recommended that additional education regarding wildfire awareness issues and fire-resistant construction materials be provided to those engaged in new construction projects.

Conservation Reserve Program Fields

Since the introduction of the CRP by the federal government, many formerly crop producing fields have been allowed to return to native grasses. CRP fields are creating a new fire concern all over the west. As thick grasses are allowed to grow naturally year after year, dense mats of dead plant material begin to buildup. Due to the availability of a continuous fuel bed, fires in

CRP fields tend to burn very intensely with large flame lengths that often times jump roads or other barriers, particularly under the influence of wind. Many landowners and fire personnel are researching allowable management techniques to deal with this increasing problem.

Currently, large blocks of land as well as scattered parcels in Lincoln County are enrolled in the CRP program. Hundreds of acres of continuous higher fuel concentrations as well as limited access to these areas have significantly increased the potential wildfire risk in these areas. Many CRP landowners are willing to conduct hazardous fuel reduction treatments to lessen the fire risk; however, they are often limited by the regulations of the CRP program.

Due to the difficulties involved with conducting fuel reduction projects on CRP land as well as the enormity of the task in Lincoln County, the CWPP committee has recommended installing three strategically located fuel breaks on CRP land near the communities of Odessa, Harrington, and Davenport. The goal is to protect these communities by lowering the intensity of a wind-driven CRP fire before it threatens homes and other resources. Additionally, a subcommittee has been recommended to elevate this issue to the regional, state, and national level.

Increasing Federal Land Ownership

Federal land ownership in Lincoln County has increased significantly over the last decade. In certain areas, ground that has been in agricultural production for nearly a century has been transferred to the management of the federal government, primarily the BLM. Due to the fact that the BLM is required to manage public lands using multiple use principles (these include but are not limited to recreation, range, timber, minerals, watershed, fish and wildlife, wilderness and natural, scenic, scientific and cultural values), many residents feel that the fire risk on these lands has increased. There is also concern that the County tax base has been affected due to these lands being removed from private ownership. It is important to note that land that has been transferred to federal ownership falls under the Payment In Lieu Of Taxes (PILT) program, which are federal payments to local governments that help offset losses in property taxes due to nontaxable federal lands within their boundaries. In 2008, the PILT program paid out $190,528 to Lincoln County for 70,575 acres administered by the BLM and 14,726 acres administered by the Bureau of Reclamation (BOR). PILT payments are designed to help local governments carry out such vital services as firefighting and police protection, construction of public schools and roads, and search-and-rescue operations and it has been shown that the amount of money paid to a county through the PILT program is actually higher than when taxes were previously paid by private citizens. PILT payments are made directly to the county and the decision on how to distribute the funds is made by the County Commissioners.

Lake Roosevelt National Recreation Area

The planning committee has recognized the northern boundary of Lincoln County not only has some of the highest risk fuels, but this area is also experiencing an increased level of residential development. The National Park Service owns and maintains the shoreline along the Lake Roosevelt as part of the Lake Roosevelt National Recreation Area. Several areas along the lake have been developed for recreational purposes included boat docks and camping facilities. Additionally, there are numerous areas along the lake that are frequented by recreationists, but are not developed or maintained for that purpose. The dry, high risk fuels in these areas significantly increase the potential for an ignition.

The wildfire risk is high within the National Recreation Area due to its intense public use as well as the potential ignition sources associated with the recreational activities such as campfires, BBQ pits, fireworks, and the use of motorized equipment. Many of the residents in Lincoln County have noted that the fuels in these areas need to be better maintained by the National Park Service to lessen the probability of an accidental ignition. Furthermore, additional signing and better enforcement of seasonal fire bans would also lessen the wildland fire risk.

The planning committee has made it a clear goal to work with all of the state and federal agencies with ownerships in Lincoln County in order to reduce fuels and lessen the wildland fire risk. Several recommendations and treatment areas have been proposed to accomplish this task.

Volunteer Firefighter Recruitment

The rural fire departments in Lincoln County are predominantly dependent on volunteer firefighters. Each district spends a considerable amount of time and resources training and equipping each volunteer, with the hope that they will continue to volunteer their services to the department for at least several years. One problem that all volunteer-based departments encounter is the diminishing number of new recruits. As populations continue to rise and more and more people build homes in high fire risk areas, the number of capable volunteers has gone down. In particular, many departments have difficulty maintaining volunteers available during regular work day hours (8am to 5pm).

One of the goals of this CWPP is to assist local fire departments and districts with the recruitment of new volunteers and retention of trained firefighters. This is a very difficult task, particularly in small, rural communities that have a limited pool; however, providing departments with funding for training, safety equipment, advertising, and possibly incentive programs will help draw more local citizens into the fire organizations.

Public Wildfire Awareness

As more and more people move into the wildland urban interface of Lincoln County, the need for a coordinated wildfire education program becomes paramount. Many new residents in high wildland fire risk areas are not aware of the potential threat nor do they recognize the lack of defensibility and/or accessibility of their homes. It is important that the local fire districts and departments in Lincoln County have the funding and materials they need to develop educational programs for citizens in their response areas. General awareness of the risk, home defensible space, evacuation procedures, sheltering, and adequate access to structures are just a few of the potential topics that could be covered. A concerted effort to provide basic materials to all fire districts and other cooperating organizations should be considered by Lincoln County. This would reduce the overall and individual cost to the districts as well as improve the quality of education and materials to be presented.

Developing a mechanism to increase public awareness regarding wildfire risks and promoting "do it yourself" mitigation actions is a primary goal of the CWPP planning committee as well as many of the individual organizations participating on the committee.

Communication

There are several communication issues being addressed in Lincoln County. Many of the emergency responders have identified areas of poor reception for both radios and cell phones. The lack of communication between responders as well as with central dispatch significantly impairs responders' ability to effectively and efficiently do their job as well as lessens their safety. The conversion to a narrow band communication system is likely to exacerbate these issues unless numerous additional repeaters are installed.

On a smaller scale, many subdivisions or unincorporated population centers have identified the need to improve emergency communication between residents. In an emergency situation, there is no existing way of notifying each resident in an area of the potential danger, the need for evacuation, etc. Many groups of homeowners have begun to establish phone trees and contact lists in order to communicate information at the individual scale; however, this is not being done in all of the high wildfire risk areas within the County.

Another communication issue that was identified during the public meetings is the ability of wildfire suppression teams to tap the local knowledge of many of the area residents, particularly the larger landowners. There are a handful of local landowners that could be an excellent resource advisor regarding the condition of county and private roads, access points, fuel conditions, etc.

Communication is a central issue for the planning committee; thus, numerous recommendations targeting the improvement of communications infrastructure, equipment, and pre-planning have been made.

Water Resources

Nearly every fire district involved in this planning process indicated the need to develop additional water resources in several rural areas. Developing water supply resources such as cisterns, dry hydrants, drafting sites, and/or dipping locations ahead of an incident is considered a force multiplier and can be critical for successful suppression of fires. Pre-developed water resources can be strategically located to cut refilling turnaround times in half or more, which saves valuable time for both structural and wildland fire suppression efforts.

The CWPP planning committee has identified development and mapping of additional water resources as a priority action item in this document.

Current Wildfire Mitigation Activities

Public Education Programs

Many of the county's fire departments and agencies are actively working on public education and homeowner responsibility by visiting neighborhoods and schools to explain fire hazards to citizens. Often, they hand deliver informative brochures and encourage homeowners to have their driveways clearly marked with their addresses to ensure more rapid and accurate response to calls and better access.

Mutual Aid Agreements

Currently the cities, towns, fire protection districts, and wildland fire agencies within Lincoln County have extensive mutual aid agreements that serve to increase the protection and effectiveness of all Lincoln County fire response jurisdictions. Municipal and county fire departments provide mutual aid for each other to the fullest extent possible. These agreements significantly improve the capabilities and effectiveness of any and all individual fire departments as well as provide assistance to the state and federal wildland fire teams. Not only does this improve the safety of Lincoln County residents, structures, infrastructure, and lands, but it also facilitates good interdepartmental working relationships.

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Chapter 6

Mitigation Recommendations

Critical to implementation of this CWPP are the identification and implementation of an integrated schedule of action items targeted at achieving a reduction in the number of human caused fires and the impact of wildland fires in Lincoln County. This section of the plan identifies and prioritizes potential mitigation actions, including treatments that can be implemented in the county to pursue that goal. As there are many land management agencies and hundreds of private landowners in Lincoln County, it is reasonable to expect that differing schedules of adoption will be made and varying degrees of compliance will be observed across various ownerships.

The land management agencies in Lincoln County, including the Washington Department of Natural Resources and the BLM, are participants in the planning process and have contributed to this plan's development. Where available, their schedule of land treatments has been considered in the planning process to improve the correlation between their identified planning efforts and the efforts of Lincoln County.

Lincoln County encourages the building of disaster resistance in normal day-to-day operations. By implementing plan activities through existing programs and resources, the cost of mitigation is often a small portion of the overall cost of a project's design or program.

All risk assessments were made based on the conditions existing during 2009. Therefore, the recommendations in this section have been made in light of those conditions. However, the components of risk and the preparedness of the county's resources are not static. It will be necessary to fine-tune this plan's recommendations regularly to adjust for changes in the components of risk, population density changes, infrastructure modifications, and other factors.

Maintenance and Monitoring

As part of the policy of Lincoln County, the Community Wildfire Protection Plan will be reviewed at least annually at special meetings of the planning committee, open to the public and involving all municipalities/jurisdictions, where action items, priorities, budgets, and modifications can be made or confirmed. The Lincoln County Commissioners or their designee is responsible for scheduling, publicizing, and leading the review meetings. During these meetings, participating jurisdictions will report on their respective projects and identify needed changes and updates to the existing plan. Maintenance of the plan will be detailed at these meetings, documented, and attached to the formal plan as an amendment. Complete re-evaluation of the plan will be made every five years. The five year review will include updates to the GIS data and mapping, re-evaluation of other Lincoln County planning documents, re-evaluation of wildfire extent and ignition profiles, and revision of community assessments.

Prioritization of Mitigation Activities

The action items recommended in this chapter were prioritized through a group discussion and voting process. The action items in Tables 6.1 – 6.4 are ranked as "High", "Moderate", or "Low" priorities. The CWPP committee does not want to restrict funding to only those projects

that are high priority because what may be a high priority for a specific community may not be a high priority at the county level. Regardless, the project may be just what the community needs to mitigate disaster. The flexibility to fund a variety of diverse projects based on varying criteria is a necessity for a functional mitigation program at the county and community level.

The proposed treatment areas listed in Table 6.5 were sorted by fire district or responsible agency and ranked on a 1, 2, 3 . . . hierarchical scale by the committee. This method results in a set of highest priority project recommendations for each jurisdiction.

Wildfire Mitigation Recommendations

As part of the implementation of wildfire mitigation activities in Lincoln County, a variety of management tools may be used. Management tools include but are not limited to the following:

- Homeowner and landowner education
- Policy changes for structures and infrastructure in the wildland-urban interface
- Home site defensible zone through fuels modification
- Community defensible zone through fuels alteration
- Access improvements
- Emergency response enhancements (training, equipment, locating new fire stations, new fire districts, pre-planning)
- Regional land management recommendations for private, state, and federal landowners

Sound risk management is a foundation for all fire management activities. Risks and uncertainties relating to fire management activities must be understood, analyzed, communicated, and managed as they relate to the cost of either doing or not doing an activity. Net gains to the public benefit will be an important component of all mitigation decisions. Maintaining private property rights will also be a guiding principle in mitigation decision-making.

Policy and Planning Efforts

Wildfire mitigation efforts must be supported by a set of policies and regulations at the county level that maintain a solid foundation for safety and consistency. The recommendations enumerated here serve that purpose. Because these items are regulatory in nature, they will not necessarily be accompanied by cost estimates. These recommendations are policy related and therefore are recommendations to the appropriate elected officials; debate and formulation of alternatives will serve to make these recommendations suitable and appropriate.

Table 6.1. Action Items in Safety and Policy.

Action Item	Goals Addressed (see page 4)	Responsible Organization	Timeline
6.1.a: Incorporate the Lincoln County Community Wildfire Protection Plan, by reference, into the Lincoln County Comprehensive Plan.	**CWPP Goal #4 and 11** High	**Lead:** Lincoln County Board of Commissioners **Support:** Lincoln County Planning Department	2 years
6.1.b: Consider adopting countywide regulations or codes that will improve rural subdivisions' fire resistance as well as ensure new developments are constructed using fire safe standards.	**CWPP Goal #3, 4, 6, 8, and 13** Moderate	**Lead:** Lincoln County Board of Commissioners **Support:** Lincoln County Fire Districts	2 years
6.1.c: Distribute Firewise-type educational brochures with building permit applications.	**CWPP Goal #5, 6, 8, and 11** High	**Lead:** Lincoln County Building Department **Support:** Washington DNR Northeast Region	6 months
6.1.d: Continue pre-planning emergency evacuation routes with specifications for varying conditions.	**CWPP Goal #3, 7, 10, and 13** High	**Lead:** Lincoln County Fire Districts **Support:** Lincoln County Sheriff's Department	2 years
6.1.e: Support prescribed burning as an effective tool to reduce hazardous fuels in the WUI within applicable regulations as is appropriate.	**CWPP Goal #2 and 9** High	**Lead:** Lincoln County Fire Districts **Support:** Washington DNR	1 year
6.1.f: Establish a committee to work with the Farm Service Agency on feasible solutions for reducing the wildland fire risk associated with land enrolled in the Conservation Reserve Program, specifically around population centers.	**CWPP Goal #2, 3, 5, 6, 8, 11, and 13** Moderate	**Lead:** CWPP Subcommittee **Support:** Lincoln County Board of Commissioners	Ongoing
6.1.g: Continue to work with developers and private landowners to enhance road layout and adherence to accepted road standards that will improve emergency services' accessibility as well as provide for better road connectivity.	**CWPP Goal #3, 4, 6, 7, 8, 11, and 12** High	**Lead:** Lincoln County Board of Commissioners **Support:** Lincoln County Planning Department	2 years
6.1.h: Begin dialogue between Lincoln County and the Washington DNR, Southeast Region to provide fire protection services on wooded properties south of Highway 2 in Lincoln County.	**CWPP Goal #3, 8, 9, 10, 11, and 13** High	**Lead:** Lincoln County Fire Districts and Washington DNR **Support:** Lincoln County Board of Commissioners	6 months
6.1.i: Continue to regulate and actively enforce all fireworks-related restrictions in Lincoln County.	**CWPP Goal #2, 3, 4, and 9** High	**Lead:** Lincoln County Sheriff's Office and Washington DNR **Support:** Lincoln County Fire Districts	Ongoing

Table 6.1. Action Items in Safety and Policy.

Action Item	Goals Addressed (see page 4)	Responsible Organization	Timeline
6.1.j: Develop a local contact list of individuals that could be used in an advisory capacity to fire suppression teams.	**CWPP Goal #3, 7, 10, and 13** High	**Lead:** Lincoln County Sheriff's Office **Support:** Lincoln County Fire Districts	1 year
6.1.k: Continue to encourage local residents to develop pre-emergency communication plans including phone trees and contact lists.	**CWPP Goal #3, 7, 10, and 13** High	**Lead:** Lincoln County Sheriff's Office **Support:** Lincoln County Fire Districts	Ongoing
6.1.l: Consider adopting a countywide fireworks ban that is in effect prior to the 4th of July.	**CWPP Goal #2, 3, 4, 5, 8, 9, 11, and 13** High	**Lead:** Lincoln County Board of Commissioners **Support:** Lincoln County Fire Districts and Washington DNR	1 year
6.1.m: Obtain the materials and funding to complete and implement the Lincoln County Livestock Evacuation Plan.	**CWPP Goal #3, 4, 5, and 11** High	**Lead:** Livestock Evacuation Volunteer Group **Support:** Lincoln County Sheriff's Office	2 year

Fire Prevention, Education, and Mitigation Projects

The protection of people and structures will be tied together closely because the loss of life in the event of a wildland fire is generally linked to a person who could not, or did not, flee a structure threatened by a wildfire or to a firefighter combating that fire. Many of the recommendations in this section will define a set of criteria for implementation while others will be rather specific in extent and application.

Many of the recommendations in this section involve education and increasing wildfire awareness among Lincoln County residents. These recommendations stem from a variety of factors including items that became obvious during the analysis of discussions during public meetings and observations about choices made by residents living in the wildland-urban interface.

Residents and policy makers of Lincoln County should recognize certain factors that exist today, the absence of which would lead to increased risk of wildland fires in Lincoln County. The items listed below should be acknowledged and recognized for their contributions to the reduction of wildland fire risks:

Forest Management has a significant impact on the fuel composition and structure in Lincoln County. The forest management programs of the Washington DNR and other landowners in the region have led to some reduction of wildland fuels where they are closest to homes and infrastructure; however, there is significant room for growth in these fuels reduction programs. Furthermore, forests are dynamic systems that will never be completely free from risk. Treated stands will need repeated treatments to reduce the risk to acceptable levels in the long term.

Agriculture is a significant component of Lincoln County's economy. Much of the interface area is made up of a mosaic of agricultural crops. The original conversion of these lands to agriculture from forest and rangelands was targeted at the most productive soils and

juxtaposition to water. Many of these ecosystems were consequently at some of the highest risk to wildland fires because biomass accumulations increased in these productive landscapes. The result today is that much of the landscape historically prone to frequent fires has been converted to agriculture, which is at a much lower risk than prior to its conversion. The preservation of a viable agricultural economy in Lincoln County is integral to the continued management of wildfire risk in this region.

Prescribed fire can be used as a tool in forest and rangeland management programs to accomplish several goals. Prescribed fire, when done correctly and in appropriate areas, can help reduce hazardous fuel loads. Prescribed fire has also been used to prepare sites for seeding or planting, improve wildlife habitat, manage competing vegetation, control insects and disease, improve forage for grazing, enhance appearance, and improve access.

Table 6.2. Action Items for Fire Prevention, Education, and Mitigation.

Action Item	Goals Addressed (see page 4)	Responsible Organization	Timeline
6.2.a: Implementation of youth and adult wildfire educational programs.	**CWPP Goal #5 and 12** High	**Lead:** Washington DNR, BLM, and Lincoln County Conservation District **Support:** Lincoln County Fire Districts and local schools	6 months
6.2.b: Prepare for wildfire events in high risk areas by conducting home site risk assessments and developing area-specific "Response Plans" to include participation by all affected jurisdictions and landowners.	**CWPP Goal #2, 3, 5, 7, 8, and 13** High	**Lead:** Washington DNR **Support:** Lincoln County Conservation District	6 months
6.2.c: Work with area homeowner's associations to foster cooperative approach to fire protection and awareness and identify mitigation needs.	**CWPP Goal #2, 5, 6, 8, and 11** High	**Lead:** Washington DNR **Support:** Lincoln County Conservation District	1 year
6.2.d: Work with WSU Extension, Master Gardeners, and other existing programs to offer firewise landscaping clinics to assist property owners in maintaining fire-resistant defensible space around structures.	**CWPP Goal #5, 8, and 11** Moderate	**Lead:** Lincoln County Conservation District **Support:** Spokane Master Gardeners and WSU Extension	Ongoing
6.2.e: Develop educational handbook regarding construction in high risk wildfire areas to be handed out with building permits.	**CWPP Goal #5, 8, and 11** High	**Lead:** Lincoln County Building Department **Support:** Washington DNR	6 months
6.2.f: Install wildfire safety zones around the Washington Department of Fish and Wildlife office and housing in Creston.	**CWPP Goal #2, 8, and 9** Moderate	**Lead:** Washington Department of Fish and Wildlife	1-2 years
6.2.g: Investigate potential for the establishment of a developed shooting range near Sprague to reduce fire ignitions in this area.	**CWPP Goal #2, 6, 9, and 11** High	**Lead:** Lincoln County Fire District #1 **Support:** BLM	1 year

Table 6.2. Action Items for Fire Prevention, Education, and Mitigation.

Action Item	Goals Addressed (see page 4)	Responsible Organization	Timeline
6.2.h: Work with the National Park Service to identify and treat high wildfire risk areas within the Lake Roosevelt National Recreation Area, particularly in areas experiencing intense public use.	**CWPP Goal #2, 3, 9, and 11** High	**Lead:** Lincoln County CWPP Planning Committee and NPS **Support:** Lincoln County Fire Districts	1 year
6.2.i: Develop a Lincoln County fire prevention coop to provide a continuing public wildfire education program and better capture defensible space and prevention teachable moments.	**CWPP Goal #5 and 11** High	**Lead:** Washington DNR and BLM **Support:** Lincoln County Fire Districts and WSU Extension	1 year
6.2.j: Develop a forest and range public education program to encourage healthy management of natural resources on private property.	**CWPP Goal #5 and 11** High	**Lead:** WSU Extension **Support:** Lincoln County Conservation District and Washington DNR	1 year
6.2.k: Explore creating a grant funded fire prevention position for Lincoln County.	**CWPP Goal #5, 8, and 10** High	**Lead:** Lincoln County Board of Commissioners **Support:** WSU Extension and Washington DNR	2 years

Infrastructure Enhancements

Critical infrastructure refers to the communications, transportation (road and rail networks), energy transport supply systems (gas and power lines), and water supply that service a region or a surrounding area. All of these components are important to northeast Washington and to Lincoln County specifically. These networks are, by definition, a part of the wildland-urban interface in the protection of people, structures, **infrastructure**, and unique ecosystems. Without supporting infrastructure, a community's structures may be protected, but the economy and way of life lost. As such, a variety of components will be considered here in terms of management philosophy, potential policy recommendations, and mitigation recommendations.

Table 6.3. Action Items for Infrastructure Enhancements.

Action Item	Goals Addressed (see page 4)	Responsible Organization	Timeline
6.3.a: Inventory, map, and sign all potential evacuation routes and procedures countywide and educate the public on use.	**CWPP Goal #3, 5, and 7** High	**Lead:** Lincoln County Fire Districts **Support:** Lincoln County Sheriff and GIS Departments	3 years
6.3.b: Map, develop GIS database, and provide signage for onsite water sources such as hydrants, underground storage tanks, and drafting or dipping sites on all ownerships across the county.	**CWPP Goal #7, 8, 10, and 13** High	**Lead:** Lincoln County Fire Districts **Support:** Lincoln County GIS Department	1 year
6.3.c: Support efforts to provide funding for upgrading the emergency service communication infrastructure to provide for better emergency response and notification countywide.	**CWPP Goal #3, 7, 10, and 13** High	**Lead:** L-Comm	3 years
6.3.d: Improve access by conducting roadside fuels treatments.	**CWPP Goal #2 and 8** High	**Lead:** Washington DNR **Support:** Lincoln County Road Department	Ongoing
6.3.e: Reestablish water crossing at Sinking Creek on Smith Prather Road North to provide access to this area for fire suppression apparatus.	**CWPP Goal #3, 7, 8, and 13** High	**Lead:** Lincoln County Road Department **Support:** Lincoln County Board of Commissioners	5 years
6.3.f: Replace bridge and maintain road surface between Walter Road East and Smith Road East to provide access for fire suppression apparatus.	**CWPP Goal #3, 7, 8, and 13** High	**Lead:** Lincoln County Fire District #6 **Support:** Area landowners	5 years
6.3.g: Investigate the development of existing high volume wells located on National Park Service property near Sterling Valley Road for fire suppression purposes.	**CWPP Goal #3, 7, 8, 9, and 13** Moderate	**Lead:** National Park Services **Support:** Washington DNR and Lincoln County Fire District #7	2 years
6.3.h: Investigate the use of the "Instant Alert" school district evacuation notification system as a short term alternative to implementation of a Reverse 911 system.	**CWPP Goal #3, 9, and 13** High	**Lead:** Lincoln County School Districts **Support:** Lincoln County Sheriff's Office	2 years
6.3.i: Conduct inventory and GIS mapping of all fire hydrant locations including the type of hydrant.	**CWPP Goal #7, 8, and 9** Moderate	**Lead:** Lincoln County GIS Department **Support:** Washington DNR and Lincoln County Fire Districts	2 years

Resource and Capability Enhancements

There are a number of resource and capability enhancements identified by the rural and wildland firefighting districts in Lincoln County. All of the needs identified by the districts are in line with increasing the ability to respond to emergencies and are fully supported by the Community Wildfire Protection Plan committee. The implementation of each item will rely on either the isolated efforts of the rural fire districts or a concerted effort by the County to achieve equitable enhancements across all of the districts.

Table 6.4. Action Items for Resource and Capability Enhancements.

Action Item	Goals Addressed (see page 4)	Responsible Organization	Timeline
6.4.a: Develop additional water resource sites to supplement fire suppression efforts throughout Lincoln County. **- Douglas/Sorensen Road** **- Kiner/Monson Road** **- Bald Ridge north of Reardan** **-Highway 231 north of Reardan** **-Junction of Neal Canyon/Spring Canyon Roads**	**CWPP Goal #8, 10, and 13** High	**Lead:** Lincoln County Fire Districts **Support:** Lincoln County Conservation District	2 years
6.4.b: Improve departmental capability by establishing a program to increase the retention and recruitment of volunteer firefighters.	**CWPP Goal #3, 10, and 13** High	**Lead:** Lincoln County Fire Districts	Ongoing
6.4.c: Update personal protective equipment for all fire districts in Lincoln County.	**CWPP Goal #3, 10, and 13** High	**Lead:** Lincoln County Fire Districts **Support:** Washington DNR	Ongoing
6.4.d: Enhance radio availability in each district, link to existing dispatch, improve range within the region, and convert to a consistent standard of radio types.	**CWPP Goal #3, 7, 8, 10, and 13** High	**Lead:** L-Comm **Support:** Lincoln County Fire Districts	3 years
6.4.e: Obtain funding for three additional apparatus and portable generators for Fire District #7.	**CWPP Goal #2, 3, 8, 10, and 13** High	**Lead:** Lincoln County Fire District #7 **Support:** Washington DNR	5 years
6.4.f: Obtain funding for building additions at Fire District #7's Creston and Lincoln stations.	**CWPP Goal #2, 3, 8, 10, and 13** High	**Lead:** Lincoln County Fire District #7	5 years
6.4.g: Continue to pursue a mutual aid agreement between Fire District #7 and Fire District #9.	**CWPP Goal #4, 5, 7, 8, 11, and 13** High	**Lead:** Lincoln County Fire District 9 **Support:** Lincoln County Fire District 7	Ongoing

Table 6.4. Action Items for Resource and Capability Enhancements.

Action Item	Goals Addressed (see page 4)	Responsible Organization	Timeline
6.4.h: Obtain support and funding for a water storage tank and upgraded water tender for the Washington Department of Fish and Wildlife.	**CWPP Goal #9** High	**Lead:** Washington Department of Fish and Wildlife **Support:** Washington DNR and BLM	2 years
6.4.i: Obtain funding for a new fire station and updated rolling stock for Fire District #3.	**CWPP Goal #2, 3, 8, 10, and 13** High	**Lead:** Lincoln County Fire District #3 **Support:** Washington DNR	5 years
6.4.j: Obtain funding for a water tender, two large drop tanks, and a new station for Fire District #1.	**CWPP Goal #2, 3, 8, 10, and 13** High	**Lead:** Lincoln County Fire District #1 **Support:** Washington DNR	1-2 years
6.4.k: Obtain funding for an urban interface truck for Fire District #5.	**CWPP Goal #2, 3, 8, 10, and 13** High	**Lead:** Lincoln County Fire District #5 **Support:** Washington DNR	1 year
6.4.l: Obtain funding for upgraded rolling stock and equipment storage for Fire District #6.	**CWPP Goal #2, 3, 8, 10, and 13** High	**Lead:** Lincoln County Fire District #6 **Support:** Washington DNR	2 years
6.4.m: Obtain support and funding for the construction of a fire station and the necessary equipment and training in Fire District #9.	**CWPP Goal #2, 3, 8, 10, and 13** High	**Lead:** Lincoln County Fire District #9 **Support:** Washington DNR	5 years
6.4.n: Obtain funding for the construction of a multi-agency Fire/EMS station with bays for both fire apparatus and EMS equipment with OSHA-approved exhaust removal systems, meeting rooms, offices, and residency quarters for Fire District #5 and Davenport Ambulance.	**CWPP Goal #2, 3, 8, 10, and 13** High	**Lead:** Lincoln County Fire District #5 **Support:** Davenport Ambulance	5 years
6.4.o: Obtain funding for the installation of additional fire hydrants around the perimeter of Wilbur to help protect the community from approaching wildland fires.	**CWPP Goal #2, 3, 7, 8, 10, and 13** High	**Lead:** Town of Wilbur	2 years
6.4.p: Continue to work with local landowners to provide access to irrigation systems for fire suppression purposes and obtain funding for the necessary adapters.	**CWPP Goal #3, 5, 7, 8, and 11** High	**Lead:** Lincoln County Fire Districts	Ongoing
6.4.q: Obtain funding for a Class A pumper in Edwall, wildland engines, and wildland gear for Lincoln County Fire District #4.	**CWPP Goal #2, 3, 8, 10, and 13** High	**Lead:** Lincoln County Fire District #4 **Support:** Washington DNR	1 year

Table 6.4. Action Items for Resource and Capability Enhancements.

Action Item	Goals Addressed (see page 4)	Responsible Organization	Timeline
6.4.r: Obtain funding for the purchase and operation of a fire and rescue boat, specifically for the patrol of the Lake Roosevelt National Recreation Area.	**CWPP Goal #2, 3, 8, 10, and 13** High	**Lead:** Lincoln County Sheriff's Office **Support:** Lincoln County Board of Commissioners and Lincoln County Fire Districts	2 years

Proposed Treatment Project Areas

The following project areas were identified by the CWPP planning committee as having multiple factors contributing to the potential wildfire risk to residents, homes, infrastructure, and the ecosystem. Treatments within the project areas will be site specific, but will likely include homeowner education, creation of a wildfire defensible space around structures, fuels reduction, and access corridor improvements. Specific site conditions may call for other types of fuels reduction and fire mitigation techniques as well. Defensible space projects may include, but are not limited to commercial or precommercial thinning, pruning, brush removal, chipping, prescribed burning, installation of greenbelts or shaded fuel breaks, and general forest health improvements.

Every projects' priority ranking was decided by the CWPP planning group for each fire district or agency responsible for implementation of the project. The planning group also gave every project a risk rating of "high", "medium", or "low". Projects with a "high" risk rating show that the area being treated has a high probability of wildfire occurrence and a wildfire in the project area will have a high impact on the community. A "low" risk rating reflects that there is a low probability of a wildfire occurring in the project area and that a fire in the project area would not have a great impact on the community. A "moderate" risk rating shows that either the project area has a moderate probability of wildfire occurrence and a moderate potential impact on the community or one of these factors was rated as "low".

Table 6.5. Proposed Treatment Project Areas.

Lincoln County Fire District	Project Id Number	Project Name	Project Type	# of Acres	# of Structures	Miles of Road	Priority Ranking	Risk Rating
1	6	Fishtrap	Defensible Space, Access Improvement	157.2	35	2.1	1	High
3	15	Odessa Fuel Break	CRP Fuel Break	214.0			1	High
4	2	Cougar Ridge	Defensible Space, Access Improvement	2,058.0	51	19.6	1	High
4	4	Devil's Gap	Defensible Space, Access Improvement	705.7	30	9.2	1	High
4	14	Moccasin Bay	Defensible Space, Access Improvement	458.7	45	4.4	2	High
4	21	Townsend Estates	Defensible Space, Access Improvement	1,907.4	24	8.6	1	High
5	1	Chrystal Cove	Access Improvement	3,393.4		8.9	4	High
5	3	Davenport Fuel Break	CRP Fuel Break	87.5			5	High
5	10	Hawk Creek	Defensible Space, Fuels Reduction	4,809.2	131		2	High
5	16	Porcupine Bay	Defensible Space, Access Improvement	475.5	72	7.1	3	High
5	18	Seven Bays/Deer Meadows	Defensible Space, Access Improvement	5,934.6	1217	85.8	1	High
6	9	Harrington Fuel Break	CRP Fuel Break	108.7			1	High
6	22	Walter/Smith Road Access	Access Improvement, Bridge Replacement			~1.0	2	High
7	8	Hanson Harbor	Defensible Space, Access Improvement	255.9	100	3.4	3	High
7	11	Keller Ferry	Defensible Space, Access Improvement	769.4	113	11.8	4	High
7	13	Lincoln Area	Defensible Space, Access Improvement	1,841.5	379	30.6	1	High
7	17	Rantz Marina	Defensible Space, Access Improvement	132.5	26	2.2	2	High
7	19	Smith Prather Road North Bridge	Partial Bridge Replacement			~1.0	5	High
8	5	Douglas/Sorensen Road Water Supply	Well Installation	~1.0			1	High
8	12	Kiner/Monson Road Well	Well Installation	~1.0			1	High
9	7	Geo Star/FDR Estates	Defensible Space, Access Improvement	660.2	91	11.7	2	High
9	20	Sunny Hills	Defensible Space, Access Improvement	1,502.4	89	12.8	1	High
DNR	23	Thinkin Lincoln	Multiple Fuels Reduction Projects	1,166.0			11	High
WDFW	26	Swanson Lake	Development of Fuels Strategy and Projects	116,935.0	69		1	High
WDFW	24	Twin Lakes/Seven Springs Dairy Road	Fuel Break	75.0	1		1	High
BLM	27	Odessa	Development of Fuels Strategy and Projects	83,016.0	400		3	High

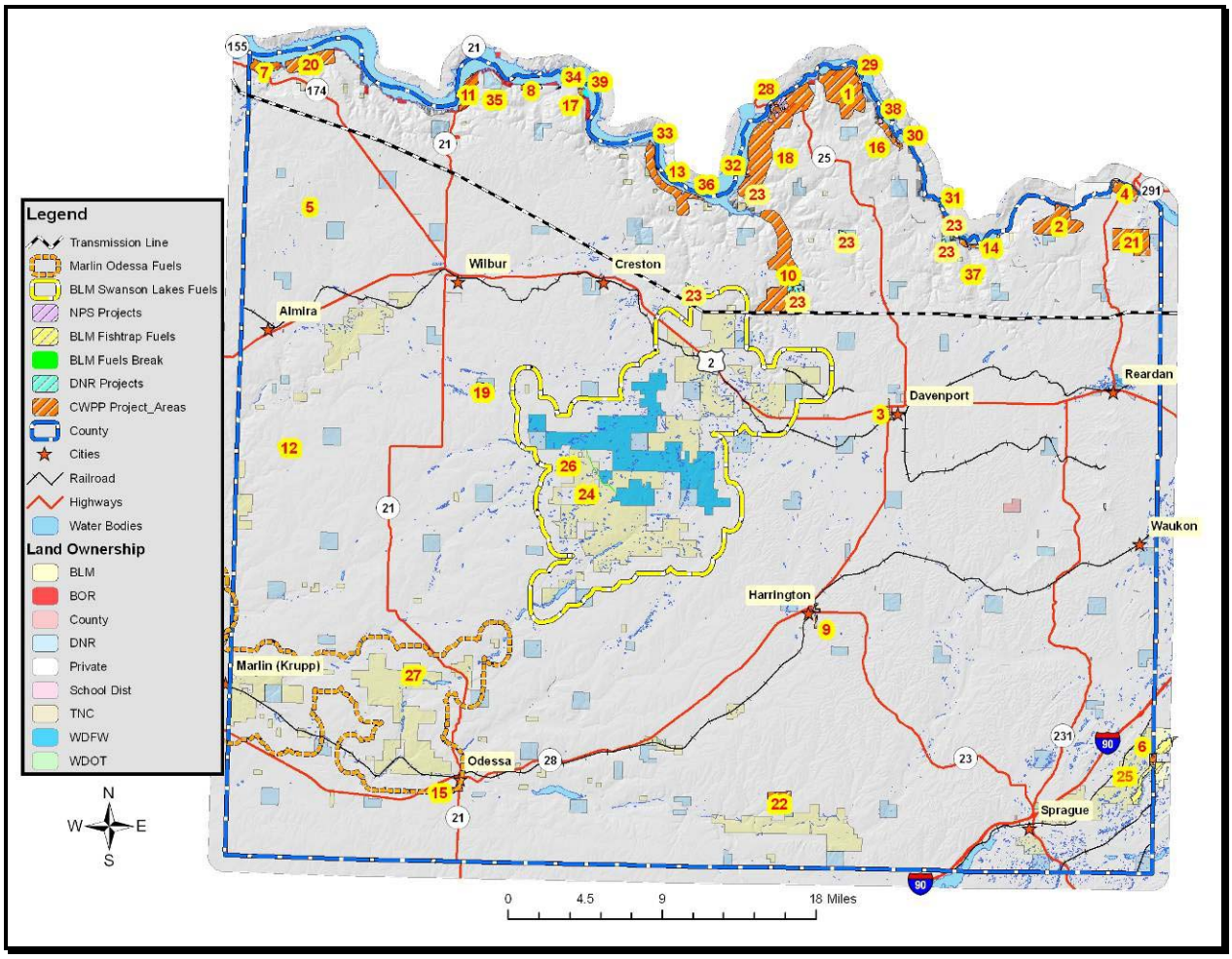
Table 6.5. Proposed Treatment Project Areas.

Lincoln County Fire District	Project Id Number	Project Name	Project Type	# of Acres	# of Structures	Miles of Road	Priority Ranking	Risk Rating
BLM	26	Swanson Lake	Development of Fuels Strategy and Projects	116,935.0	69		1	High
BLM	25	Fishtrap/Hog Lake	Fuels Reduction	1,014.0	0		2	High
BLM	24	Twin Lakes/Seven Springs Dairy Road	Fuel Break	75	1		1	High
NPS	28	Fort Spokane	Fuels Reduction	380.0	469.0	6	1	High
NPS	29	Detillion	Fuels Reduction	11.0	11.0		1	High
NPS	30	Laughbon/Porcupine	Fuels Reduction	31.0	31.0		1	High
NPS	31	Cayuse Cove	Fuels Reduction	6.0	6.0		1	High
NPS	32	Seven Bays	Bitterbrush Fuels Reduction	16.0	16.0		1	High
NPS	33	SterlingValley	Fuels Reduction	24.0	24.0		1	High
NPS	34	Jones Bay	Understory Burning	11.0	11.0		1	High
NPS	35	Keller Ferry	Propose Future Project Area	9.0	1		1	High
NPS	36	Lincoln Mill	Proposed Future Project Area	14.0			1	High
NPS	37	Mill Canyon	Proposed Future Project Area	37.0			1	High
NPS	38	Porcupine CG	Fuels Reduction	48.0	2		1	High
NPS	39	Rantz Marine	Proposed Future Project Area	9.0			1	High
NPS		Firewise Fuel Reduction	Defensible Space		TBD		1	High

*The number of structures is based on address points; thus, the number of actual buildings may be higher.

The Washington DNR, Washington Department of Fish and Wildlife Service, Bureau of Land Management, National Park Service, individual fire protection districts, or individual landowners may take the lead on implementation of many of these projects; however, project boundaries were purposely drawn without regard to land ownership in order to capture the full breadth of the potential wildland fire risk. Coordination and participation by numerous landowners will be required for the successful implementation of the identified projects.

Figure 6.1. Map of Proposed Projects



Regional Land Management Recommendations

Wildfires will continue to ignite and burn depending on the weather conditions and other factors enumerated earlier. However, active land management that modifies fuels, promotes healthy forestland conditions, and promotes the use of natural resources (consumptive and non-consumptive) will ensure that these lands have value to society and the local region. The Washington DNR, Washington Department of Fish and Wildlife Service, BLM, private forest landowners, and all agricultural landowners in the region should be encouraged to actively manage their wildland-urban interface lands in a manner consistent with reducing fuels and wildfire risks.

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Chapter 7

Supporting Information

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Signature Pages

This Lincoln County Community Wildfire Protection Plan has been developed in cooperation and collaboration with representatives of the following organizations and agencies.

Lincoln County Board of Commissioners

BEFORE THE BOARD OF COUNTY COMMISSIONERS
LINCOLN COUNTY, WASHINGTON

IN THE MATTER OF DECLARING	)	
COUNTY SUPPORT AND	)	**RESOLUTION 09-51**
ADOPTION OF THE LINCOLN	)	
COUNTY COMMUNITY WILDFIRE	)	
PROTECTION PLAN	)	

WHEREAS, the Board of County Commissioners of Lincoln County having convened in Regular Session, in their office at the Lincoln County Courthouse this 8th day of September, 2009, with a quorum of members present; and

WHEREAS, The Lincoln County Board of Commissioners supports the Lincoln County Community Wildfire Protection Plan; and

WHEREAS, The Lincoln County Community Wildfire Protection Plan will be utilized as a guide for planning as related to the National Fire Plan, the Healthy Forest Restoration Act, and other purposes as deemed appropriate:

NOW THEREFORE IT BE RESOLVED that the Lincoln County Board of Commissioners do hereby adopt and support the Lincoln County Community Wildfire Protection Plan.

DATED at Davenport, Lincoln County, Washington, this 8th day of September, 2009.

ATTEST

Clerk of the Board – Shelly Johnston

By Marci Patterson
Deputy Clerk of the Board
Marci Patterson

BOARD OF COUNTY COMMISSIONERS
OF LINCOLN COUNTY, WASHINGTON

Excused
Chairman – Dennis D. Bly

Scott M. Hutsell
Vice Chairman – Scott M. Hutsell

Ted Hopkins
Member – Ted Hopkins

Signatures of Participation by Lincoln County Fire Districts and Departments

This Community Wildfire Protection Plan and all of its components identified herein were developed in close cooperation with the participating entities listed.

By: Craig Haden, Chief
Wilbur Fire Department — Date: 8-11-09

By: Scott Clemenson, Chief
Lincoln County Fire District #1 — Date: 8-24 09

By: Roger Sebesta, Chief
Lincoln County Fire District #3 — Date: 8/13/09

By: Ryan Rettkowski, Chief
Lincoln County Fire District #4 — Date: 8-20-09

By: Gene Johnson, Chief
Lincoln County Fire District #5 — Date: 8-11-09

By: Scott McGowan, Chief
Lincoln County Fire District #6 — Date: 8/13/09

By: Craig Haden, Chief
Lincoln County Fire District #7 — Date: 8-13-09

By: Loren Houger, Creston Station Chief
Lincoln County Fire District #7 — Date: 9-2-09

By: Jim Derrer, Lincoln Station Chief
Lincoln County Fire District #7 — Date:

By: Dennis Pinar, Jr., Chief
Lincoln County Fire District #8 — Date: 8-11-09

By: Donald Rasmussen
Lincoln County Fire District #9 — Date: 9-4-09

Signatures of Participation by other Lincoln County Entities

This Community Wildfire Protection Plan and all of its components identified herein were developed in close cooperation with the participating entities listed.

By: Chuck Turley, State Forester
Washington Department of Natural Resources — Date: 11/6/09

Deborah Burd — 9/4/09
By:
National Park Service, Lake Roosevelt National Recreation Area — Date

Jack A. Anderson — 8/11/09
By:
Washington Department of Fish and Wildlife — Date

June E Hues — 8/14/09
By: June Hues, Border Field Manager
Bureau of Land Management — Date

David C. Fallow — 8/11/09
By:
Cattlemen's Association — Date

Thomas D. Schmitt — 8/12/09
By:
Lincoln County Conservation District — Date

Wade W. Magers — 9-8-09
By: Wade Magers, Sheriff and Emergency Manager
Lincoln County, Washington — Date

Tera R. King — August 28, 2009
By: Tera R. King, Project Manager
Northwest Management, Inc. — Date

Literature Cited

Agee, J.K. 1993. Fire ecology of the Pacific Northwest forests. Oregon: Island Press.

Bureau of Land Management. 2004. Fire Management Plan. Spokane District Office. Spokane, Washington. 32 pp.

Brown, J.K. 1995. Fire regimes and their relevance to ecosystem management. Pages 171-178 *In* Proceedings of Society of American Foresters National Convention, Sept. 18-22, 1994, Anchorage, AK. Society of American Foresters, Wash. DC.

General Accountability Office. Technology Assessment – "Protecting Structures and Improving Communications during Wildland Fires". GAO-05-380. April 2005.

Hann, W.J., Bunnell, D.L. 2001. Fire and land management planning and implementation across multiple scales. Int. J. Wildland Fire. 10:389-403.

Hardy, C.C., Schmidt, K.M., Menakis, J.M., Samson, N.R. 2001. Spatial data for national fire planning and fuel management. International Journal of Wildland Fire 10:353-372.

Headwaters Economics. 2007. Home Development on Fire Prone Lands – West-Wide Summary. Headwaters Economics. Bozeman, Montana. Available online at http://www.headwaterseconomics.org/wildfire/index.php#top.

Hebner, Scott. 2000. Fire Management Plan Environmental Assessment. Lake Roosevelt National Recreation Area. October 2000. 63 pp.

Lincoln County. Lincoln County Website. Available online at http://www.co.lincoln.wa.us/index.html. Accessed Spring 2009.

Lincoln County. 1983. Lincoln County Comprehensive Plan. Lincoln County Planning Commission. Davenport, Washington. 34 pp.

Lincoln County. 2006. Lincoln County Emergency Management Plan. Lincoln County Sheriff's Office. Davenport, Washington. April 2006. 49 pp.

Louks, B. 2001. Air Quality PM 10 Air Quality Monitoring Point Source Emissions; Point site locations of DEQ/EPA air monitoring locations with monitoring type and pollutant. Oregon Department of Environmental Quality. Feb. 2001. As GIS Data set. Boise, Id.

McCoy, L., K. Close, J. Dunchrack, S. Husari, and B. Jackson. 2001. May 6 –24, 2001. Cerro Grande Fire Behavior Narrative.

National Interagency Fire Center. 2008. Available online at http://www.nifc.gov/.

Norton, P. 2002. Bear Valley National Wildlife Refuge Fire Hazard Reduction Project: Final Environmental Assessment, June 20, 2002. Fish and Wildlife Service, Bear Valley National Wildlife Refuge.

Schmidt, K.M., Menakis, J.P. Hardy, C.C., Hann, W.J., Bunnell, D.L. 2002. Development of coarse-scale spatial data for wildland fire and fuel management. General Technical Report, RMRS-GTR-87, U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fort Collins, CO.

USDA-Forest Service (United States Department of Agriculture, Forest Service). 2000. Incorporating Air Quality Effects of Wildland Fire Management into Forest Plan Revisions – A Desk Guide. April 2000. – Draft

Washington Department of Fish and Wildlife. 2006. Swanson Lakes Wildlife Area Management Plan. Wildlife Management Program, Washington Department of Fish and Wildlife, Olympia. 40 pp.

Wildland Fire Leadership Council 2006. A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment: 10-Year Strategy Implementation Plan. Available online at http://www.forestsandrangelands.gov/plan/documents/10-YearStrategyFinal_Dec2006.pdf. Accessed November 2008.

This plan was developed by Northwest Management, Inc. under contract with Lincoln County and the Washington Department of Natural Resources. Funding for the project was provided by the Bureau of Land Management.

Citation of this work:

King, Tera R. and V. Bloch. *Lead Authors.* 2009. Lincoln County, Washington, Community Wildfire Protection Plan. Northwest Management, Inc., Moscow, Idaho. Pp 94.

King, Tera R. and V. Bloch. *Lead Authors.* 2009. Lincoln County, Washington, Community Wildfire Protection Plan Appendices. Northwest Management, Inc., Moscow, Idaho. Pp 51.

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